The influence of feedback messages on neurophysiological responses in a non-profit context

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ABSTRACT

The prevalent growth in the number of non-profit organisations in South Africa, but a decline in donor support to them at the same time, has prompted the need for further research in the non-profit sector. Furthermore, an exponential increase in social demands in South Africa has left many non-profit organisations facing huge financial dilemmas and in many cases, possible closure. The current low level of support towards the non-profit sector requires an increased level of public involvement that, in turn, requires improved attitudes and perceptions towards the benefits and contributions that non-profit organisations provide to society. Marketing techniques can contribute to individual involvement with non-profit organisations by means of the development of positive perceptions and decision-making associated with philanthropic giving.

As non-profit organisations are increasingly facing numerous challenges such as competing for scarce resources to ensure sustained funding, strategic marketing practices have become a necessity. The non-profit industry relies on a high level of human involvement, and as a result, the marketing managers of these organisations are particularly interested in identifying marketing and communication methods that can encourage donors to donate money to worthy causes. However, the time constraints associated with producing quality content with a limited budget for the expenses to measure their communication effectiveness often hinder their marketing and communication efforts. In addition, the current dilemma pertaining to the low level of government and individual support towards the non-profit industry prompted the need for further marketing and communication-related research to identify effective practices.

Against this background, the purpose of this study was to explore the effectiveness of post-donation feedback messages on donor neurophysiological responses in a non-profit context using a neuromarketing approach. Neurophysiological techniques were used to identify the types of stimuli, in terms of the feedback message elements, that are most influential on individual neurophysiological responses and the individual's subsequent decision-making.

The feedback messages from two non-profit organisations, *Cheetah Outreach* and *Reach for a Dream*, were pre-designed as the stimuli required for the study. These text messages were classified primarily as statements of gratitude communicated to donors on behalf of each non-profit organisation. The neurophysiological response to each feedback message was measured. The analysis and reporting of results were accompanied by a consolidated discussion from a *post-hoc* focus group with marketing professionals. The study made use of three neuroscientific techniques, namely galvanic skin response (GSR), electromyography (EMG) and eye-tracking.

Each neurophysiological technique measured donor subconscious responses such as levels of arousal, emotional response and focused attention. Responses from the overall sample of respondents were analysed. Additional analysis of the data considered gender and respondent

decision-making preferences based on self-classified emotional or rational thinking. The findings indicated neurophysiological influences from the different feedback message elements on the levels of arousal and emotional responses among respondents.

From the empirical results it is recommended that non-profit communication managers carefully articulate innovative and informative messages prior to the design of feedback communication. Considering the novelty of the neuromarketing field, extensive scope for further neuromarketing research exists within a non-profit context.

Keywords: non-profit organisation, donations, feedback, communication, neuromarketing, message design, neurophysiological responses

OPSOMMING

Die heersende groei in die getal nie-winsgewende organisasies in Suid-Afrika en die meegaande afname in skenkerondersteuning het dit noodsaaklik gemaak om verdere navorsing in die nie-winsgewende sektor te doen. Menige nie-winsgewende organisasies se voortbestaan verkeer tans onder druk weens die ingrypende toename in maatskaplike eise in Suid-Afrika en 'n tekort aan geldelike ondersteuning. Om hierdie toedrag van sake te verander, vereis groter publieke betrokkenheid en op sy beurt, 'n verandering in die houding en persepsies ten opsigte van die maatskaplike voordele en bydraes wat nie-winsgewende organisasies vir die gemeenskap inhou. Bemarkingstegnieke kan 'n betekenisvolle bydrae lewer tot individuele betrokkenheid by nie-winsgewende organisasies deur middel van die ontwikkeling van positiewe persepsies en besluitneming ten opsigte van filantropiese skenking.

Namate hierdie organisasies meer uitdagings in die gestig staar insluitende die meedinging om skaars hulpbronne ten einde volhoubare befondsing te verseker, het strategiese bemarkingspraktyke egter al hoe belangriker geword. Aangesien die nie-winsgewende bedryf grootliks afhanklik is van menslike betrokkenheid, is bemarkings- en kommunikasiebestuurders van nie-winsgewende organisasies daarop ingestel om bemarkings- en kommunikasiemetodes te identifiseer wat skenkers kan aanmoedig om te gee vir verdienstelike sake. Die tydsbeperkinge om gehalte inhoud te lewer, asook om die doeltreffendheid van kommunikasie- en bemarkingsmetodes te meet binne 'n beperkte begroting, belemmer dikwels sodanige inisiatiewe.

Die dilemma van onvoldoende ondersteuning van beide die regering en individue aan die nie-winsgewende bedryf, vereis verdere bemarkingsnavorsing ten einde doeltreffende bemarkings- en kommunikasiepraktyke te identifiseer. Gesien teen hierdie agtergrond, was die doel van hierdie studie om die doeltreffendheid van na-skenkings terugvoerboodskappe op die neurofisiologiese reaksies van respondente in 'n nie-winsgewende konteks te ondersoek. Dit is gedoen deur middel van 'n neurofisiologiese benadering. Neurofisiologiese tegnieke is gebruik om die tipe stimuli in terme van terugvoer-boodskapelemente te identifiseer wat die grootste invloed sou hê op individuele neurofisiologiese reaksies en die respondent se daaropvolgende gedrag.

Terugvoerboodskappe van twee nie-winsgewende organisasies naamlik, *Cheetah Outreach* en *Reach for a Dream*, is vooraf ontwerp as die stimuli wat benodig was vir die studie. Hierdie teksboodskappe is hoofsaaklik geklassifiseer as uitdrukkings van waardering teenoor skenkers namens die nie-winsgewende organisasies. Die neurofisiologiese reaksies vir elke terugvoerboodskap is gemeet. Die ontleding en rapportering van die resultate is vergesel deur n gekonsolideerde bespreking van 'n *post-hoc* fokusgroep met kundiges in bemarking. Die studie het gebruik gemaak van drie neurowetenskaplike tegnieke naamlik, galvaniese velreaksie

(GVR), elektromiografie (EMG) en die volg van oogbewegings (ET). Elke neurofisiologiese tegniek het die skenker, se reaksies in die onderbewussyn gemeet in terme van gewaarwording, emosionele reaksie en gefokusde aandag. Die reaksies van die algehele steekproef van respondente is ontleed. Die data is verder ontleed op grond van geslag en of respondente hulleself geklassifiseer het as rasionele of emosionele denkers. Die bevindinge het neurofisiologiese invloede aangedui op die verskillende tekselemente van die terugvoerboodskappe op die respondente se vlakke van gewaarwording en emosionele reaksies.

Gegewe die empiriese resultate word aanbeveel dat bemarkings- en kommunikasiebestuurders van nie-winsgewende organisasies versigtig te werk gaan met die artikulering van innoverende en informatiewe boodskappe alvorens die terugvoerkommunikasie ontwerp word. Die uniekheid van die neurobemarkingsveld skep ‘n vrugbare en breë veld vir verdere neurobemarkingsnavorsing binne ‘n nie-winsgewende konteks.

Trefwoorde:

Nie-winsgewende organisasies, skenkings, terugvoer, kommunikasie, neurobemarking, boodskapontwerp, neurofisiologiese reaksie.

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LIST OF ABBREVIATIONS AND ACRONYMS

ACO	-	Attitudes towards charitable organisations
AHO	-	Attitudes towards helping others
AMA	-	American Marketing Association
ANS	-	Autonomous nervous system
CNS	-	Central nervous system
CO	-	Cheetah Outreach (NPO one)
ELM	-	Elaboration likelihood model
EMG	-	Electromyography
ET	-	Eye-tracking
4Cs	-	Commodity, cost, communication and convenience
4Ps	-	Product, price, place and promotion
GSR	-	Galvanic skin response
H	-	Hypothesis
HH	-	Decision-basis
IMC	-	Integrated marketing communication
IPA	-	Institute of Practitioners in Advertising (UK-based)
Marcom	-	Marketing communication
NPO	-	Non-profit organisation
PNS	-	Peripheral nervous system
RFDRM	-	Reach for a Dream (NPO two)
SCR	-	Skin conductance
SNS	-	Somatic nervous system
S-O-R	-	Stimulus-organism response model
WEF	-	World Economic Forum

CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION

During recent years, the non-profit sector has experienced rapid growth in both size and functionality, illustrating the increasing importance of this sector (Salamon & Anheier, 1996; Sargeant, 1999). As a result, organisations in the non-profit sector work in a heavily competitive environment where resources are scarce (Sargeant, 2001). In addition to this competitive environment, the non-profit sector is experiencing a decrease in funding leading to reliance on a smaller support base (Sargeant, 2001).

In order for non-profit organisations to survive and succeed, marketing managers need to understand modernised ways of appealing to audiences for financial support (Andreasen & Kotler, 1991). A thorough understanding of donor behaviour is thus an important requirement for the survival and success of a non-profit organisation. Contributions by the government and foundations are declining, yet the amount appears to exceed the level of received individual donations. According to Sargeant and Bennett (2004), government funding and funding from foundations have received little attention in the marketing literature.

The levels of individual giving in many countries are failing to keep up with the increasing resource demands from non-profit organisations (Sargeant, 1999). As a result, the non-profit organisations are continuously faced with financial uncertainties and operational dilemmas (Helmig, Jegers & Lapsley, 2004). Current research suggests that individuals are the biggest contributors to the non-profit sector (Hibbert & Horne 1996; Racionzer, 2013). As such, the industry is heavily reliant on private support from individuals by means of the donation of resources such as money and time.

Since the introduction of marketing principles by non-profit organisations started in the late 1960s, it has accelerated into a widely accepted and practised discipline (Helmig & Thaler, 2010). However, an array of marketing literature theorises on profitmaking offerings without considering the non-profit context (Bendapudi, Singh & Bendapudi, 1996). The current study focuses on providing guidance for non-profit organisations in terms of identifying effective communication techniques by means of feedback messages from non-profit organisations to their donors. A primary focus of the study was to identify individual neurophysiological responses in terms of feedback messages with the intended outcome of influencing future donor behaviour and long-term relationships.

A study by Lee, Broderick and Chamberlain (2007) defines neuromarketing as a field of study that applies neuroscientific methods to analyse human behaviour in terms of marketing exchanges through neuro-imaging techniques. Neuromarketing makes use of a revolutionary technique that has not received much attention from a marketing research perspective. Yet, the number of

neuroscientific research studies and companies that use neuromarketing techniques have risen substantially in the last few decades (Van Praet, 2012).

This study focuses on neuromarketing methodology with the aim to close the gap between identifying what individuals say they feel and what they actually feel. Although the technological aspect of the methodology requires further development, the study offers valuable insights into the subconscious aspects of human decision-making. Current research makes use of electromyography (EMG), galvanic skin response (GSR) and eye-tracking which are the most prominent neuroscientific techniques used.

In order to indicate to donors that their support is making a difference, non-profit organisations can manipulate current communicative marketing techniques to project accurate measures of feedback to these donors. The purpose of the study is thus to identify the influence of feedback messages on the neurophysiological responses of individuals towards non-profit organisations. Insight into the physiological processes that occur in response to communication messages can indicate the future behaviour of individuals concerning their intentions to donate or to continue to donate.

1.2 MARKETING AND THE NON-PROFIT SECTOR

Kotler (1979) defines a non-profit organisation as a means to meeting social needs without a profit motive. The dependence on private citizen sponsors and support introduces the need for continued research to maximise the use of current resources and capabilities to ensure success and efficiency amongst non-profit organisations. A South African-based research paper published by Swilling and Russel (2002) has proved to be the seminal article that has contributed significantly to the country's understanding of the citizen sector (Racionzer, 2013). According to Statistics South Africa (2013), results emphasise the importance of government subsidies and local donations as the majority of contributors to the income state of the non-profit sector in South Africa.

The extent to which non-profit organisations appeal to the public is solely reliant on their use of marketing practices. Consequently, this study recognises the need for the acceptance of marketing practices, and to identify effective marketing techniques that can be implemented by non-profit managers to improve the levels of support. Dolnicar and Lazarevski (2009) concur that communication is an important marketing strategy that can be adapted by non-profit organisations to appeal for individual involvement.

1.3 MARKETING COMMUNICATION AND THE NON-PROFIT SECTOR

In a non-profit context, an effective communication strategy is a primary resource that needs to be implemented in order to maximise favourable responses in the form of donations from individuals (Hibbert & Horne, 1996). The ultimate goal is to communicate the message at the most suitable opportunity (Henley, 2001). Charitable donations are an important financial resource for non-profit organisations (Chang & Lee, 2009), with individual donations comprising one of the biggest forms

of income to these organisations. As a result, message design effectiveness is considered crucial in order to maximise a positive response from potential contributors (Hibbert & Horne 1996; Racionzer, 2013).

Schiffman and Kanuk (2009) define communication as “the transmission of a message from a sender to a receiver via a medium (or channel)”. The diversity of communication options for marketers empowers them to maximise their offerings by choosing the most effective channel (Keller, 2001). The communication model consists of four essential building blocks, namely the sender, the receiver, the medium and the message. The fifth element, which is also an essential component of the communication process and the primary focus of this study, is feedback. Feedback does not only alert the sender as to whether the message was received (Schiffman & Kanuk, 2009), but it also contains the receiver’s response to the message.

Schramm (1954) derived a feedback model from the Shannon-Weaver Transmission Model of Communication. Schramm’s model includes six communication elements namely, the source, the encoder, the message, the channel, the decoder and the receiver. Messages are an integral part in the communication feedback process. Schramm (1954) asserts that messages can yield different meanings for different people. As a result, message characteristics play an important role in the transmission and acceptance of the meaning. The message source, message framing, prospect theory and the message vividness all affect the structure and presentation of the message, thus influencing the overall meaning of the message.

From the literature review discussed above, it can be concluded that the elements of feedback and message design are integral to the marketing process and can make a significant contribution to the effectiveness of communication. Little research, however, has been published concerning feedback practices and in particular the importance of feedback messages to donors in a non-profit context.

Against this background, the purpose of the study was to design feedback messages that express gratitude from the non-profit organisations to donors who gave their support. In addition, the study aimed to ascertain whether the design of specific feedback messages had a positive neurophysiological effect on donors, and thereby influencing their decision-making.

1.4 DONOR BEHAVIOUR AND NON-PROFIT ORGANISATIONS

The deteriorating state of society and the environment is a concern across the globe and requires dedicated organisations and individuals to improve global welfare. It is not without the help and support of individual donations and volunteers that charitable organisations are successful. Mcgrath (1997) proposes a solution of retaining current donors above trying to recruit new ones by means of creating value and loyalty. Understanding donor behaviour in a non-profit context is

required, including why donors donate money, in order to tailor and develop communication messages that will encourage continuous support.

Mcgrath (1997) defines donor value as “those things that create donor satisfaction and make the donor want to give again”. Guy and Patton (1989) suggest that donors’ experience a decision-making process before demonstrating philanthropic giving. Understanding the underlying motives of charitable giving helps marketers in tailoring their marketing techniques to appeal to and influence individuals’ donation intentions (Hibbert & Horne, 1989; Guy & Patton, 1989). Furthermore, a thorough understanding of donor behaviour is also required to sustain individual support. Non-profit organisations, on the other hand, need to effectively appeal to donors to retain their involvement, and to secure long-term relationships.

According to Morgan and Hunt (1994), relationship marketing can be defined as “all marketing activities directed towards establishing, developing and maintaining successful relational exchanges”. Considering that non-profit organisations rely heavily on private donations, and to encourage continued involvement from individuals, it is important that managers of non-profit organisations implement a relationship marketing approach (Hibbert & Horne, 1996). In this regard, the components of commitment and trust are important.

The current study employed neuromarketing as the primary methodology used to test the influence of feedback text messages on individual neurophysiological responses in a non-profit context, with the intention of influencing long-term donor involvement.

In order to investigate human behaviour, researchers are beginning to integrate brain anatomy with physiological functions (Genco, Pohlmann & Steidl, 2013). Neuromarketing is the bridge between two emerging fields of study known as consumer behaviour and neuroscience (Morin, 2011). The practical scope of neuromarketing allows researchers to test the effect of a stimulus on an individual brain and also to identify the individual’s process of decision-making (Reimann, Schilke, Weber, Neuhaus & Zaichkowsky, 2011).

1.5 PROBLEM STATEMENT

As a result of the growing need for non-profit services, increasing competition from other non-profit organisations and declining support from government, non-profit organisations have turned to marketing experts to assist them to develop effective and appealing strategies (Bendapudi *et al*., 1996). However, there is a lack of empirical research to guide non-profit organisations and provide them of a thorough understanding of the reasons why people donate money to charitable organisations.

Consequently, it is hypothesised that effective feedback methods, specifically text messages, can influence individuals’ responses and behaviour. The purpose of the study was to examine the effect of feedback messages on individual neurophysiological responses, and by doing so, to gain

a better understanding of the subconscious processes experienced by these individuals following their exposure to communication messages from non-profit organisations. Based on the interpretation of the individuals' levels of arousal and emotional responses towards the communication messages, the aim was to identify the most effective message content elements that appealed to these individuals.

The study thus addressed the question whether an effective method of communication through the design of feedback messages from a non-profit organisation to their donors can improve the rate of charitable giving, specifically donations, in South Africa.

1.6 RESEARCH OBJECTIVES AND HYPOTHESES

The purpose of the study was to investigate the influence of feedback text messages on individuals' neurophysiological responses in a non-profit context. Both primary and secondary objectives were formulated.

1.6.1 Primary objective

The primary objective of the study was to investigate the influence of feedback message content on neurophysiological responses in a non-profit context.

1.6.2 Secondary objectives

The secondary objectives of the study were to investigate the influence of independent and comparative feedback messages on neurophysiological responses using EMG and GSR measures. In addition, a secondary objective was to explore the influence of non-profit context feedback messages on eye-tracking responses. The data were analysed from a gender (male and female) perspective and decision-basis (rational and emotional) perspective.

1.6.3 Hypotheses

Based on the primary and secondary objectives, the following hypotheses were formulated:

$H_{1:}$ Neurophysiological measures (a: GSR and b: EMG) do not differ from the baseline in terms of text 1 to text 10

$H_{2:}$ Neurophysiological measures (a: GSR and b: EMG) do not differ from each other in terms of text 1 to text 10

$H_{3:}$ Gender neurophysiological measures (a: GSR and b: EMG) do not differ from the baseline in terms of text 1 to text 10

$H_{4:}$ Gender neurophysiological measures (a: GSR and b: EMG) for text 1 to text 10 do not differ from each other

$H_{5:}$ Neurophysiological measures (a: GSR and b: EMG) for text 1 to 10 do not differ from each other in the gender groups

$H_{6:}$ Decision-basis neurophysiological measures (a: GSR and b: EMG) do not differ from the baseline in text 1 to text 10

$H_{7:}$ Decision-basis neurophysiological measures (a: GSR and b: EMG) for text 1 to text 10 do not differ from each other

$H_{8:}$ Neurophysiological measures (a: GSR and b: EMG) for text 1 to 10 do not differ from each other in the decision-basis groups

A hypothesis in terms of the eye-tracking measure was not included as the findings were reported using a descriptive approach.

1.7 RESEARCH DESIGN

A thorough and detailed methodological plan is critical to the research process in order to ensure that the research conducted is performed efficiently and effectively (McDaniel & Gates, 2009). For the purpose of this research, a neuromarketing methodological approach was used to address the objectives of the study.

1.7.1 Secondary research

The literature topics reviewed include donor behaviour, the current state of the non-profit sector in South Africa, effective communication, feedback message design and neuroscience. An imminent interest in the neuroscience field has allowed the current research to focus on neuromarketing-related studies. Online journals such as the *Journal of Marketing*, the *Journal of Non-Profit and Public Sector Marketing*, the *Journal of Consumer Research and Communications Research* and *the Journal of Neuropsychology and Psychophysiology* are popular sources that were accessed by using Google Scholar and the Stellenbosch online library database. A number of marketing-related textbooks focusing on marketing management, business research methods, consumer behaviour theories and neuromarketing research were also consulted.

1.7.2 Primary research

The primary research technique for the study made use of neuromarketing techniques. Neuromarketing, a sub-category of neuroscience, is the methodological approach used to identify an individual's neurophysiological response to a stimulus. The research study made use of an electronic observation method with experimental elements. The research took place in a laboratory environment.

1.7.2.1 Measurement

For many years marketing professionals have relied on personal experience, self-reporting and intuition to predict consumer decision-making by using effective advertising (McDaniel & Gates, 2007). The emergence of neuromarketing techniques and the advances in technology have provided marketing professionals with the ability to provide academic relevance by tapping into consumer minds using scientific equipment to gain valuable information from individuals' subconscious processes (Butler, 2008; Lee, Butler & Senior, 2010).

A neuromarketing approach overrides some of the limitations of the conventional research techniques that requires marketing professionals to trust the feedback received and recorded from individuals (Morin, 2011). Experimental studies that adopt a neurophysiological technique have a primary intention of assessing and analysing a consumer's cognitive and affective processes in response to a pre-determined stimulus (Ohme, Reykowska, Wiener & Choromanska, 2010). For the purpose of this study, and in line with the literature, three neuromarketing measures were used, namely galvanic skin response (GSR), eye-tracking (ET) and electromyography (EMG).

Galvanic skin response or skin conductance is a frequently used neurophysiological measure. The method is primarily used to detect changes in skin moisture when the autonomic nervous system is activated, which is an indicator of arousal (Ravaja, 2004; Boshoff, 2012). The EMG method is used to evaluate physiological properties of the facial muscles (Ohme, Matukin & Szczurko, 2010). Electromyography measures demonstrate the emotional responses of respondents in response to a stimulus of sort. Eye-tracking identifies where a respondent is looking (point of gaze), how long a respondent is looking for, and the path of the respondent's view and changes in pupil dilation in response to a stimulus. Heat maps are generated for an analysis of results indicating cues that cause the least and the most attention among respondents.

1.7.3 Experimental validity

According to Heeler and Ray (1972), the most important goal in the evaluation of research measure is validity. Validity measures the accuracy or the extent to which a true score represents a concept (Zikmund, Babin, Carr & Griffin, 2010). Reliability is also important but it cannot predict or assume validity (Zikmund *et al*., 2010). There are two types of validity that need to be addressed, namely, external validity and internal validity.

1.7.3.1 Internal validity

In the case of this research, ninety individuals were recruited to participate. Extraneous variables can be defined as variables that may interfere with the dependent variables of the study (Zikmund *et al*., 2010). There were a number of extraneous variables that could affect the internal validity of the study. The testing effects (i.e. the effect of a pre-test affects the response during the experiment) as well as the mortality effect (i.e. when respondents withdraw from the research

before it is completed) did not apply. The research was conducted over a period of nine weeks. The maturation effect, instrumentation effect, selection effect and the cohort effect can be considered as the only possible extraneous variables that could have affected the level of internal validity (Zikmund *et al*., 2010).

1.7.3.2 External validity

In order to achieve external validity, a single exposure to only one of the groups of text messages enhanced the external validity of the results. Bias of stimuli repetition (demand effects) was avoided by using a single exposure approach. The stimuli used were realistic and consistent with the real world. Face validity was achieved as literature and research experts in the neuroscientific field were consulted during the research process. The respondents were randomly assigned between the two groups of stimuli by means of computer-generated software.

1.7.4 Stimuli design

The stimuli consisted of two groups of ten pre-designed feedback text messages from two different non-profit organisations. These text messages formed the independent variables in the study, while the dependent variables consisted of the EMG, GSR and eye-tracking measures.

1.7.4.1 Text message design

The text messages were designed based on collected responses from the public via a social media channel. In order to provide the context, participants were presented with a statement illustrating the current status of the non-profit industry in South Africa. In response, the participants were asked to answer a hypothetical question regarding donations made to a non-profit organisation. Those respondents who chose to participate (twenty respondents) were requested to send text responses illustrating their expectations of a message of gratitude that they wished to receive from the non-profit organisation after they had made a personal donation.

The twenty completed text message responses were reviewed and condensed into ten text messages of feedback per group. Each message was designed to differ in terms of the content included such as the source of the message, monetary value, numeric values, words of gratitude; emotive expressions, narratives or standard thank you's. In addition to the ten text messages, two warm-up statements or distractors were included. The warm-up or distractor messages were included as part of the stimuli to prevent the respondents from identifying any trends within the stimuli. Each stimuli group made use of ten identical text messages, however, the non-profit organisation represented in the messages was different.

Non-profit organisation number one represented *Cheetah Outreach*, an organisation based in Somerset West, dedicated to the conservation and protection of the wild cheetah. Non-profit organisation number two represented *Reach for a Dream*, a non-profit organisation based in

Johannesburg, dedicated to fulfilling the dreams of children with life-threatening illnesses. The first group of respondents were exposed to the text messages from *Cheetah Outreach*, while the second group of respondents were exposed to the text messages from *Reach for a Dream*.

1.7.4.1.1 Presentation of text messages

The text messages were designed in an online format and displayed on a computer screen. Each group of text messages contained two warm-up statements. All stimuli and warm-up statements were presented in a random order. Respondents were presented with the task of watching and reading the messages presented on the screen. All respondents were exposed to the stimuli individually. Before exposure, a baseline measure for each respondent was recorded for thirty seconds. A baseline index is determined to identify the exact starting point when measuring a neurophysiological score. The text messages were presented individually on a computer screen. The text font was Arial size 24, centred and grey in colour. By modifying the wording in the text messages, different neurophysiological responses were detected. The aim was to identify whether the modification of the message content such as numeric values, emotional words and message sources, influenced the way in which respondents reacted through neurophysiological responses.

1.7.4.2 Independent variables

Elements of communication influence the way in which individuals make decisions and are persuaded to perform certain actions (Schiffman & Kanuk, 2009). This study made use of stimuli design consisting of ten unique text messages. These ten feedback messages could be classified as the independent variables of the study. Table 1.1 presents the text messages for the two non-profit organisations used in the study.

Table 1.1: Independent variables: Feedback text messages

Text message	**Non-profit one *Cheetah Outreach* Text messages**	**Non-profit two *Reach for a Dream* Text messages**	**Message content elements**
Text 1	Thank you for your donation!	Thank you for your donation!	Simplified statement
Text 2	Thank you for your donation to Cheetah Outreach!	Thank you for your donation to Reach for a Dream!	Simplified statement specific to non-profit organisation
Text 3	Thank you for your generous donation to Cheetah Outreach!	Thank you for your generous donation to Reach for a Dream!	Elaborate wording
Text 4	Thank you for donating R500 to Cheetah Outreach	Thank you for donating R500 to Reach for a Dream!	Monetary numeric value

Text 5	Thanks to your donation we have managed to raise R250 000 for Cheetah Outreach. Thank you for making a difference!	Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!	Collective monetary numeric value
Text 6	Your donation has helped us to save 150 cheetahs in the past 12 months!	Your donation has helped us to support 16 520 children in the past 12 months!	Factual quantitative statement
Text 7	Dear supporter, thank you for your donation to Cheetah Outreach!	Dear supporter, thank you for your donation to Reach for a Dream!	Generalised address
Text 8	Dear kind supporter, thank you for your donation to Cheetah Outreach!	Dear kind supporter, thank you for your donation to Reach for a Dream!	Elaborate generalised address
Text 9	Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'	Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'	Message source
Text 10	Your donation has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Sheperd Dog Programme in support of protecting the wild Cheetah.	Your donation has contributed towards helping Reach for a Dream continue giving hope to children fighting life-threatening illnesses.	Narrative statement

Each text message contains differences by varying the message content elements. The study tested whether a neurophysiological reaction took place in response to exposure to these different text messages. More specifically, the study explored whether there were significant differences in the neurophysiological responses towards the types of message content elements.

1.7.4.3 Dependent variables

The dependent variables of the study can be classified as the neurophysiological techniques, namely EMG and GSR that were used to identify the type of response identified from respondents.

1.8 DATA COLLECTION METHOD

The respondents were invited to participate in a study involving the testing of neurophysiological responses to feedback messages in a non-profit context. Those who agreed were offered an incentive of R250 for their participation. All feedback messages were presented online in a text format. The research was conducted on ninety respondents of mixed age and gender over nine weeks. Only right-handed respondents could participate in the study. In consideration that the brain is divided into two hemispheres, the two halves are not identical as each hemisphere specializes in different functional zones. Depending on a person's handedness, the specialized functional area is identified (Mastin, 2012). Respondents were not permitted to drink caffeine before being tested as

caffeine is considered to be a high-energy stimulant that has a number of physiological effects on the brain.

The study made use of electronic observations in a laboratory setting. GSR, EMG and ET equipment were used to measure the respondents' neurophysiological responses.

1.8.1 Neuromarketing research procedure

The data collection process took place in the Neurophysiology Laboratory of Stellenbosch University. The respondents were required to complete a paper-based pre-test questionnaire, prior to the neurophysiological measurement.

1.8.1.1 Pre-test questionnaire

The pre-test questionnaire required respondents to provide their demographic information such as gender and age. Furthermore, the questionnaire consisted of eleven pre-designed items based on a seven-point agreement scale. Respondents were required to answer statements pertaining to attitudes towards helping others (Webb, Green & Brashear, 2000); attitudes towards charitable organisations (Webb *et al.,* 2000), and decision-making style (Shiv & Fedorikhin, 1999). The study made use of decision-basis scales requiring respondents to indicate whether they believed they made decisions based on their emotional, impulsive and desirable feelings, also known as their 'heart', or alternatively, they had to indicate whether they made decisions based on willpower, thoughts and prudence, also known as their 'head'. Zaltman (2003) suggests that reason and emotion are inter-dependent and thus work in collaboration with each other.

Lastly, respondents were given two short paragraphs to read. The paragraphs contained information regarding two non-profit organisations chosen by the researcher. Information about the non-profit organisations, *Cheetah Outreach* and *Reach for a Dream* was presented in paragraph format. After reading each paragraph, respondents were required to indicate on a scale of one to seven, their familiarity with each non-profit organisation.

1.8.1.2 Focus group

In order to validate and interpret the results, and after final data set was analysed, a *post hoc* focus group was established at Stellenbosch University. The focus group participants were requested to interpret a sample of the neurophysiological results. The focus group consisted of ten members of mixed age and gender of the Stellenbosch University's Economic and Management Sciences Faculty, specifically marketing experts, who were unfamiliar with the study. Each member received an information pack labelled 'discussion material'. The pack consisted of the set of results structured in accordance with the neuromarketing technique that was measured. The sets of text message results were chosen as a sample from the final results. Each set included two text

messages from the stimuli groups. The sets illustrated the messages that displayed statistical scores of significant difference.

1.8.2 Sample size

According to Bercea (2011), neuromarketing studies typically have small sample sizes. The sample for the final data collection process comprised ninety respondents using a convenience sampling method of both genders above eighteen years of age. The recruitment took place primarily at Stellenbosch University.

1.8.3 Sampling process for data collection

The full complement of ninety respondents was split into two groups of forty-five in accordance with the two groups of stimuli. The split between the two groups was determined by random assignment by the programming of the computerised presentation software used for neuromarketing data collection.

1.9 DATA ANALYSIS

Data analysis is the process of understanding and interpreting the data that have been collected (Zikmund *et al*., 2010). Neuromarketing software and Microsoft Excel were used to analyse the data by means of descriptive statistics and inferential statistics. GSR and EMG data were analysed using software supplied by Brain Products GmbH. The eye-tracking data was analysed by software supplied by SensoMotoric Instruments (SMI), more specifically the iViewRed250 system.

1.9.1 Descriptive statistics

Descriptive statistics make use of demographic variables analysed by means of frequency tables where the mean scores can be analysed (Blumberg, Cooper & Schindler, 2008; Zikmund *et al.,* 2010). Descriptive statistics were used to calculate the frequency in gender, age, attitude towards helping others, attitudes towards charitable organisations, decision basis and familiarity with the non-profit organisations.

1.9.2 Inferential statistics

An independent sample *t*-test was used to analyse the data. The baseline was normalised for each respondent individually prior to exposure to the stimuli, and allowing for a thirty second resting state as recommended by Tullet, Harmon-Jones and Inzlicht (2012). The baseline value was thus recorded from the resting state before exposure to the stimulus. Each respondent was exposed to the stimuli in a random order. Each respondent group was exposed to the same number of stimuli.

1.9.2.1 Independent sample *t*-test

The data were analysed using an independent sample *t*-test. The advantage of using a *t*-test is that variability across subject responses is taken into account. In order to determine whether there is a statistical difference between mean scores, one is firstly dependent on the means and the variability in the responses. The *t*-test is the simplest and direct statistical test that is frequently used in neuromarketing. It is limited to a comparison of only two groups (Genco *et al*., 2013).

1.9.2.1.1 Analysis of the Electromyography (EMG)

The facial muscle index measure was calculated by subtracting activity from the *corrugator supercilii* from the *zygomaticus* major activity. The result generated is either positive (above zero) or negative (below zero). EMG measures were analysed using an independent sample *t*-test. The raw signal for EMG data is complex to analyse without data reduction processes (Fridlund & Cacioppo, 1986).

1.9.2.1.2 Analysis of the Galvanic Skin Response (GSR)

GSR measures were analysed using an independent sample *t*-test. According to LaBarbera and Tucciarone (1995), researchers do not fully comprehend the mathematical formulations used to assist GSR scores, thus the formulas are kept confidential. It is not yet determined whether GSR measures are positive or negative.

1.10 THE CONTRIBUTION OF THE STUDY

In a profit-making environment, studies by Harley (1984) and Petersen (1997) reveal that it is five times as costly to attract new customers than it is to retain existing customers. As a result, it is important that managers identify and implement the most effective marketing strategies to appeal to and maximise a positive response among individual contributors in a non-profit context (Hibbert & Horne, 1996). Furthermore, less attention has been given towards identifying the effect on individuals' attitudes and behaviour as a result of message framing (Maheswaran & Meyers-Levy, 1990).

The current research considered the neurophysiological effects on individuals after they were exposed to a set of pre-designed communication messages in a non-profit context. Ultimately, an understanding of the elements in feedback message design showing positive physiological responses may drive decision-making and behaviour towards the long-term benefit of non-profit organisations. The findings of the study can be considered as valuable as the research reveals communication elements that are most effective on donor neurophysiological responses.

1.11 ORIENTATION OF THE STUDY

The orientation of the study section involves a brief summary of each chapter that collaboratively explains the structure of the research study.

1.11.1 Chapter one: Introduction

Chapter one provides an overall outline of the purpose of the research. It includes a discussion of previous literature based on the significant marketing concepts applicable to this study such as neuromarketing and donor behaviour towards non-profit organisations and effective communication through feedback. The problem statement, objectives and the methodology describing the data collection process are also outlined.

1.11.2 Chapter two: Marketing practices and non-profit organisations

An introduction to marketing and the non-profit sector is provided. A classification of the types of non-profit organisations is discussed along with the current status of funding and donations towards the non-profit sector in South Africa. South African statistics are provided to describe the prominent existence and growth of the non-profit sector. An overview of marketing is also offered including the marketing principles and practices suitable for the non-profit sector.

1.11.3 Chapter three: Marketing communication and the non-profit sector

This chapter discusses the evolution and importance of marketing communication as a possible technique that non-profit organisations can use to improve their appeal towards encouraging philanthropic giving. A brief overview of the importance of feedback by means of the feedback loop model and an explanation of how the elements namely, the source, the encoder, the message, the channel, the decoder and the receiver, contribute to the overall communication process is included. The chapter concludes with a discussion of the involvement theory, the elaboration likelihood model and the prospect theory as contributors to the theoretical framework in terms of message design and effectiveness.

1.11.4 Chapter four: Donor behaviour and non-profit organisations

Chapter four explores the concept of donor behaviour and intentions in a non-profit environment. It starts with a review on consumer behaviour and the use of neuromarketing as a primary research measure that focuses on the link between psychological and physiological behaviour. The motivations underlying individual giving as well as the helping decision-making process are reviewed. Relationship marketing is included as an introduction to highlight the importance of appealing to donors with the intention of creating a long-term relationship.

1.11.5 Chapter five: Methodology

Chapter five provides a detailed analysis of the neuromarketing research approach, and the focus group that were used in the primary data collection process. The hypotheses and objectives of the study are outlined. The method of designing the stimuli, the design of the stimuli as well as the process of choosing a sample and collecting the data are also addressed. The chapter ends with a review and explanation of the neuromarketing techniques used in the study.

1.11.6 Chapter six: Data analysis

Chapter six illustrates the descriptive and inferential tests that were conducted in order to analyse the neuromarketing findings from the data. The specialised neuromarketing software and Microsoft Excel programme that were used during the process of data capturing and analysis of the results, are explained. An analysis of the findings is presented in tabular format for each neurophysiological technique. A conclusion of whether to accept or reject a proposed hypothesis is also provided.

1.11.7 Chapter seven: Conclusions and recommendations

Chapter seven provides an overview of the limitations, managerial implications, and conclusions for the study based on the neurophysiological and marketing communication results. Considering that neuroscience is a new marketing focus, recommendations for future research are also made.

CHAPTER TWO

MARKETING AND THE NON-PROFIT SECTOR

2.1 INTRODUCTION

One of the first definitions posed by Kotler and Levy (1969) refers to the non-profit sector as "sensitively serving and satisfying human needs". Non-profit organisations have taken up the responsibility of fulfilling social needs neglected by the government and the private sector, forcing them to rely on voluntary public support in the form of financial and non-financial involvement (Mitchell & Taylor, 1997). With the development and growth of the non-profit sector, a number of complexities have emerged including rapidly changing social needs, an increase in competition in both the private and public sector, changing consumer attitudes and behaviour, and a decline in financial support, whether it is from the government or from private sponsors (Kotler, 1979). These circumstances, along with the low level of individual support are a concern as managers of non-profit organisations are faced with the added challenge of managing and maintaining their position in the industry in comparison to their rivals (Bennett, 2003).

The growing demand for accountability from donors has challenged and encouraged managers of non-profit organisations to adopt marketing techniques that appeal to individuals for continuous support (Padanyi & Gainer, 2004). According to Kotler and Levy (1969), marketing activities play an essential role in the success of non-profit organisations. Since non-profit organisations are dependent on donations and support from mostly individuals, the approach that is used to encourage and retain individual involvement needs to be adapted (Macmillan, Money, Money & Downing, 2005). Certain non-profit organisational characteristics, such as non-financial objectives and a broad target market, contribute to the financial pressures often experienced by non-profit organisations that may hamper their success (Bruce, 1995).

For many years, certain marketing techniques have been exclusively applied in the profit-making industry (Shapiro, 1974). The concerns facing the non-profit sector including the new challenges in the marketplace led to the sector's adoption of the marketing concept (Kotler, 1979). However, managers in the non-profit sector have failed to recognise the intrinsic value of marketing tools and techniques, leading to a number of market pressures and complexities in the industry (Helmig *et al*., 2004). Therefore, the organisational marketing practices need to be reconsidered by the non-profit sector in order to effectively market products and services to a wide range of target markets (Helmig *et al*., 2004).

Against this background, further research based on the non-profit sector is required so that managerial tasks can be identified, understood and implemented, providing non-profit organisations with the right approach to function effectively and to achieve long-term success. It is also important to define and classify non-profit organisations.

This chapter therefore examines the nature of non-profit organisations with specific emphasis on the classification system, and the current economic state of the non-profit sector in South Africa. An overview is also given of the level of individual giving, not only in South Africa, but also worldwide.

2.2 THE MARKETING DEFINITION FOR NON-PROFIT ORGANISATIONS

The universally acknowledged definition of marketing evolved from a body of principles, concepts and viewpoints (Bartels, 1976). From the marketing literature review, it is evident that some of the earliest forms of marketing as a discipline emerged from the theory of economics where the primary focus was on transaction and exchange (Sheth & Parvatiyar, 1995; Hansmann, 1987). According to Bartels (1976), the theory of economics has contributed the most compared to the contributing role of any other social discipline in the development of the marketing concept.

Since the 1900s, the definition evolved as the practice and study of marketing became a popular discipline (Helmig & Thaler, 2010). One of the earliest definitions of marketing that was presented in 1935 described the concept as “the performance of business activities that direct flow of goods and services from producers to consumers” (Helmig & Thaler, 2010). In a detailed approach, Bartels (1976) revealed the evolution of marketing history starting from the discovery of marketing in the 1900s to the socialisation of marketing in 1970.

Until the 1950s, the non-profit sector consisted largely of traditional charities that survived on income that was received from philanthropic contributions (Hansmann, 1987). During the 1950s, the marketing of consumer goods was the primary focus for many organisations. According to Hansmann (1987), the non-profit sector commenced in the early 1970s, and by the 1980s the non-profit services sector received a significant amount of attention (Lamb, Hair, McDaniel, Boshoff & Terblanche, 2008).

2.2.1 Broadening the marketing concept

The debate regarding the introduction of non-profit organisations as an element of the marketing concept originated with Kotler and Levy (1969). Since these authors’ publication of the article, *‘Broadening the concept of marketing*’, there has been an extensive amount of research focusing on the non-profit industry which resulted in the marketing concept being applied in a broader context (Hibbert & Horne, 1996).

In their attempt to broaden the marketing definition Kotler and Levy (1969) introduced a new description, namely “the concept of sensitively serving and satisfying human needs”. According to Arbuthnot and Horne (1997), this definition initiated a debate as to whether the marketing concept can be restricted to only market transactions. Kotler and Levy (1969) focused on the expansion of the marketing definition by introducing social activity to practise a broader social meaning and transition from treating marketing primarily as a business activity.

In 1971, the *Journal of Marketing* released a publication devoted to marketing in non-profit organisations. Prior to this publication, researchers made use of the existing marketing definition by focusing on the application of the marketing concept in industries such as public transport and health services. It was evident then that managers had already adopted the function of marketing in the non-profit industry (Kotler, 1979). Since 1985, the definition of marketing was again, renewed and referred to as "the process of planning and executing the conception, pricing, promotion and distribution of ideas, goods and services to create exchange and satisfy individual organisational objectives" (Grönroos, 1989; Arndt, 1978).

Schiffman and Kanuk (2009) view the marketing concept as a business orientation that evolved in the 1950s with a number of approaches. These approaches involve business activities such as the production and selling of products and concepts (Schiffman & Kanuk, 2009). Similarly, the consolidation of a number of factors such as pricing, product development, distribution and communication are required to meet consumer needs and to complete a business exchange (Kotler and Levy, 1969). As the concept of marketing developed as a field of study and practise, so did the transformation from business transactions to relationships (Sheth & Parvatiyar, 1995).

As a result, the introduction of managing customer relationships was added to the marketing definition in 2004, and by 2007 the notion of satisfying customer needs as well as serving the needs of society was considered (Helmig & Thaler, 2010). Table 2.1 summarises the evolution and development of the marketing concept over time, according to the *Marketing Association*. Compiled by Helmig and Thaler (2010), it is a consolidated approach towards the marketing concept compared to Bartels' (1976) evolution of marketing history.

Table 2.1: The definitions and development of the marketing concept over time (The American Marketing Association)

Year	The definitions and development of the marketing concept over time (The American Marketing Association)	Focus
1935	Marketing is the performance of business activities that direct flow of goods and services from producers to consumers.	Business activities
1985	Marketing is the process of planning and executing the conception, pricing, promotion and distribution of ideas, goods and services to create exchanges that satisfy individual and organisational objectives.	Normative approach; exchange paradigm
2004	Marketing is an organisational function and a set of processes for creating, communicating and delivering value to customers and for managing customer relationships in ways that benefit the organisation and its stakeholders.	Relationship; value creation paradigm
2007	Marketing is an activity, set of institutions and processes for creating, communicating, delivering and exchanging offerings that have value for customers, clients, partners and society at large.	Satisfaction of customer wants; serving a society's needs.

Source: Helmig and Thaler (2010)

The different philosophies on which marketing management is based strongly influence the activities performed in the marketing environment (Lamb *et al*., 2008). Grönroos (1989) introduced the marketing concept as a philosophy whereby the business activities of an organisation can focus on the needs and wants of customers from selected target markets. Grönroos (1989) suggests that if the marketing concept is considered as a philosophy and the aforementioned approach is implemented, firms' business activities are most likely to be successful and profitable. Another important philosophy focuses on societal marketing, which is concerned with the well-being of society and the protection of individuals (Lamb *et al.,* 2008).

2.2.2 The emergence of societal marketing

The societal marketing orientation extends beyond the generation of profit only, and instead focuses on satisfying the goals of society (Lazer, 1969: 3). Societal marketing dates back to the 1950s, when organisations realised that a strategy needed to be developed that considers the effect and well-being of society whilst at the same time satisfying the everyday needs and wants of consumers (Lazer, 1969: 4). The first thought towards extending marketing practices with a non-business approach originated from Philip Kotler (Kotler & Levy, 1969; Crane & Desmond, 2002). With this approach, marketers started to consider the promotion of social ideas and causes with the core purpose of benefitting society.

Kotler (1972) extended the concept of societal marketing by introducing another element to the basic marketing concept approach, namely consumer welfare. With this addition to the marketing concept, Kotler (1972) acknowledged the lack of concern and support towards social welfare. By the 1960s, the change in marketing thought introduced the inclusion of society in marketing theory and practice (Bartels, 1976). As a result, there was a shift from a profit-and-sales driven approach to the consideration of societal implications in marketing practices (Kotler & Zaltman, 1971; Bartels, 1976).

In their understanding of societal marketing, Ward and Lewandowska (2006: 243) define the concept as "the marketing activity that focuses on society rather than the individual consumer as its audience". Societal marketing thus enhances the need to preserve the long-term interests of individuals and society while it promotes an increased responsibility for marketing practitioners from the society's point of view (Crane & Desmond, 2002: 548).

Societal marketing resulted in marketing managers being confronted with an increasing demand for societal support, due to many organisations' lack of concern for quality of life, a preference for profit-driven behaviour and failure to recognise opportunities for disadvantaged groups (Bartels, 1976). Whilst the concept of marketing was accepted, marketing practitioners realised over time that further requirements were needed for long-term marketing success (Lamb *et al.,* 2008). Firstly, the marketing activities performed by the organisation should benefit society. Secondly, the marketing activities cannot be treated as once-off activities, but should rather be performed with

the intention of developing a long-term relationship and loyalty between the organisation and the consumer (Lamb *et al.,* 2008).

Over time, programmes were developed to prepare organisations for the emerging non-profit market (Cugelman, 2010), and by the year 2000, the concept of societal marketing played an important role in the marketing industry (Cugelman, 2010). Marketing is continuously becoming an action-orientated approach in which to solve problems relating to communication and persuasion. In addition, the approach focuses on the acceptance of commercial products and services as well as behaviour that can benefit society (Kotler & Zaltman, 1971).

2.2.3 The importance of marketing for the non-profit sector

In recent times, competition among non-profit organisations has intensified due to the declining economic resources and a shift in responsibilities from government to the non-profit sector (Salamon, 1985; Salamon, 1989). Apart from these circumstances, non-profit organisations are also experiencing mounting financial pressure that has resulted in them having to adopt marketing strategies and practices that are applicable to the private sector (Alexander & Weiner, 1998).

Against this background, non-profit organisations need to improve their strategies with the goal of securing a bigger pool of resources (Bennett, 2003: 335). It has become evident that non-profit organisations can be encouraged to implement marketing strategies such as segmentation, product positioning, advertising and distribution in order to effectively identify, target and communicate to the public for support (Dolnicar & Lazarevski, 2009: 277).

As mentioned earlier, a number of marketing techniques were successfully and exclusively applied in the for-profit industry before the recognition of the non-profit sector (Shapiro, 1974). Since then, the value of marketing in the non-profit sector has been recognised as a research subject by several authors (Guy & Patton, 1989; Varadarajan & Menon, 1988).

According to Dolnicar and Lazarevski (2009), researchers such as Gonzalez, Vijande and Casielles (2002), Sargeant, Foreman and Liao (2002) and Macedo and Pinho (2006), believe that suitable strategic marketing techniques are essential for non-profit organisations. Marketing activities encourage and guide the non-profit organisations in the right direction with their purpose of appealing to supporters. The extent to which non-profit organisations need to appeal to the public is solely reliable on the way in which they apply marketing principles.

A study by Kotler (1979) revealed that there was a lag in the adoption of marketing practices by non-profit organisations. However, over time, non-profit organisations have slowly been introducing marketing as part of their daily activities (Dolnicar & Lazarevski, 2009). Unlike for-profit organisations who have restricted and unique target audiences, non-profit organisations appeal to numerous audiences thereby having the additional challenge of managing and maintaining several relationships (Dolnicar & Lazarevski, 2009: 277). Consequently, non-profit organisations need

assistance in the development of marketing strategies that can ensure long-term and committed relationships with their audiences (Foreman, 2005: 1; Bennett, 2003: 335).

The non-profit sector has become familiar with for-profit marketplace challenges such as competition, high operating costs and a decline in individual support (Kotler, 1979). Andreasen and Kotler (2003: 5) emphasise the necessity for non-profit organisation managers to adopt a marketing mind-set in which to fulfil their organisational missions and influence donors and volunteers to support their cause.

Kotler (1979) suggests that marketing as a practice promotes the survival and growth of an organisation, whilst increasing the level of contributions of supporters. The operational complexities and dilemmas that the non-profit industry faces require on-going analysis and implementation of effective solutions for industry stability (Helmig *et al*., 2004).

A study by Dolnicar & Lazarevski (2009) considers a number of marketing techniques that play an important role towards the success of non-profit organisations. These strategies include: 1) identifying individuals who are most likely to become involved in supporting the non-profit organisation; 2) building an attractive brand image that is appealing to individuals; 3) developing communication messages to attract individuals; and 4) identifying appropriate communication channels to convey the message.

2.2.4 The relevance of marketing for the study

In many contexts, traditional marketing approaches have been used for the promotion of non-profit organisations and to raise public awareness (Andreasen & Kotler, 2003; Wymer, 2004). A theoretical background based on the evolution of the marketing concept and societal marketing is considered relevant as this study focuses on identifying effective marketing techniques in the non-profit sector.

This study focuses on identifying and designing effective marketing communication methods that can be used to communicate with donors. The purpose of communicating with donors is to not only appeal to them for support, but also to encourage continued giving behaviour in support of the non-profit sector. The application of marketing principles provides a solid foundation on which to develop these effective communication methods.

2.3 DEFINING THE NON-PROFIT SECTOR

Despite the growing acceptance of and interest in the non-profit sector by scholars, corporations and managers, limited research has been conducted towards developing a definition in order to present an understanding of a sector that contains so many diverse entities. A number of research articles concerning the definition of non-profit organisations and the non-profit sector were reviewed before consulting the seminal article by Salamon and Anheier (1992b) who engaged in a

vast amount of research with regard to the non-profit sector to develop a universal definition and international classification system.

Kotler (1979) defines a non-profit organisation as a means to meeting social needs without a profit motive, while Hansmann (1980) refers to non-profit organisations as a "non-distribution constraint organisation" that is prohibited from distributing any earnings. In a profit-making environment, the primary aim of an organisation is to generate sufficient income by means of multiple exchanges in order to yield a profitable transaction. Non-profit organisations, on the other hand, aim to make proceeds by means of the selling of goods or services. However, the proceeds that are made are used primarily to cover the costs of running the business (Lamb *et al.,* 2008).

Non-profit organisations are service-oriented and socially responsive by specialising in the delivery of socially responsible services that are not currently provided by a government or any other business (Kotler, 1979). Focusing on true, non-profit organisations, Hansmann (1987) classifies these organisations as non-profit corporations or charitable trusts. These organisations are not discouraged from earning a profit; they should rather consider it as a source of financing in support of their cause or beneficiaries (Hansmann, 1987). In addition, Wu and Hang (2008: 322) define non-profit organisations as organisations that are "prohibited from distributing its profits to individuals, group members, directors, officers, or board members".

According to Salamon and Anheier (1992b), a lack of understanding and ability to provide a definition for the non-profit sector has brought about the low level of interest among individuals. As a result, Salamon and Anheier (1992b) addressed the underlying reasons for the apparent lack of interest towards the non-profit sector by developing a universal definition that can be used in future research, thereby creating a better understanding of the sector among individuals.

According to Salamon and Anheier's (1992b) definition of the non-profit sector, it consists of five basic criteria, namely: formal criteria, private criteria, non-profit distributing criteria, self-governing criteria and voluntary criteria. A brief explanation of each criterion is provided in Table 2.2.

Table 2.2: Defining the non-profit sector

Criteria	Explanations of each sector
Formal	Institutionalised. Individuals who gather temporarily, informally or on an *ad hoc* basis cannot be classified as part of the non-profit sector. The organisation must show significance of being an institution.
Non-profit distributing	Profits generated are not distributed among owners and directors. Any profits made within a given year must be dedicated to the organisation's basic purpose.
Voluntary	It is not required that income contributions or employee support be voluntary, however, organisational activities or management takes place through voluntary participation.
Private	Separated from the government. The organisations may not be controlled by government officials.
Self-governing	There must be procedures in place to control the organisation's own activities internally. There may not be any influence or control from external entities.

Source: Adapted from Salamon and Anheier (1992b); Anheier (2005)

According to Billis and Glennerster (1998) and Salamon and Anheier (1992b), it is recommended that researchers specialising in the non-profit sector make use of the structural or operational definition explained in Table 2.2. For the purpose of this study, it can then also be assumed that reference to the non-profit sector and non-profit organisations in particular, is associated with the structural or operational definition.

Further research is required to equip managers in the non-profit sector with the appropriate marketing methods and techniques that will maximise the use of current resource capabilities for efficient operation.

2.3.1 The different types of non-profit organisations

Continuing their research on developing a universal definition of the non-profit sector, Salamon and Anheier (1992b) identified the need to further define non-profit organisations by making use of a classification system. The purpose of the classification system was to systematically define the types of organisations in the sector across the globe (Salamon & Anheier, 1992c). The international classification system identifies twelve major groups and twenty-four subgroups of organisations in the non-profit sector.

Table 2.3 illustrates the types of organisations where the major groups and their individual subgroups are shown (Anheier, 2005; Salamon & Anheier, 1996). For the purpose of this study, the primary focus falls on group four, namely social services with particular focus on the social services subgroup and group five, namely the environment, and more specifically its subgroup, animals.

Table 2.3: The international classification of non-profit organisations

Group 1	**Culture and recreation** Culture and the arts Sports Service clubs
Group 2	**Education and Research** Primary and secondary education Higher education Other education Research
Group 3	**Health** Hospitals and rehabilitation Nursing homes Mental health and crisis intervention Other health services

Group 4	**Social services** Social services Emergency and refugees Income support and maintenance
Group 5	**Environment** Environment Animals
Group 6	**Development and housing** Economic, social and community development Housing Employment training
Group 7	**Law, advocacy and politics** Civic and advocacy organisations Law and legal services Political organisations
Group 8	**Philanthropic intermediaries and voluntarism promotion**
Group 9	**International** International activities
Group 10	**Religion** Religious congregations and associations
Group 11	**Business and professional associations; Unions**
Group 12	**Not elsewhere classified**

Source: Salamon and Anheier (1992c); Anheier (2005); Salamon and Anheier (1996)

Group four or social services in Table 2.3 refers to those organisations providing and promoting social services to children, youth, families and handicapped individuals, emergency and refugee

support in addition to income and maintenance support (Salamon & Anheieir, 1992c). Group five or the environment in Table 2.3 refers to those organisations providing and promoting services and activities with a focus on environmental conservation, control and the prevention of pollution, environmental education, health and animal protection (Salamon & Anheieir, 1992c). A brief description of the activities of both social services and the animals' subgroup are shown in Table 2.4.

Table 2.4: Activities of non-profit organisations associated with social services and animal welfare

Category of non-profit organisations associated with social services	Activities of social services subgroup	Category of non-profit organisations associated with animal welfare	Activities of animals' subgroup
Child welfare, child services and day care	Services to children, adoption, development centres, foster care and infant care	Animal protection and welfare	Animal shelters and humane societies
Youth services and youth welfare	Delinquency prevention, teen pregnancy prevention, drop-out prevention, job programmes	Wildlife preservation and protection	Sanctuaries and refugees
Family services	Family life/parent education, single parent agencies, family violence shelters	Veterinary services	Hospitals that provide care to farm and domestic animals and pets
Services for handicapped	Homes, nursing homes, transport facilities, recreation and specialised services		

Source: Adapted from Salamon and Anheier (1992c); Salamon and Anheier (1996)

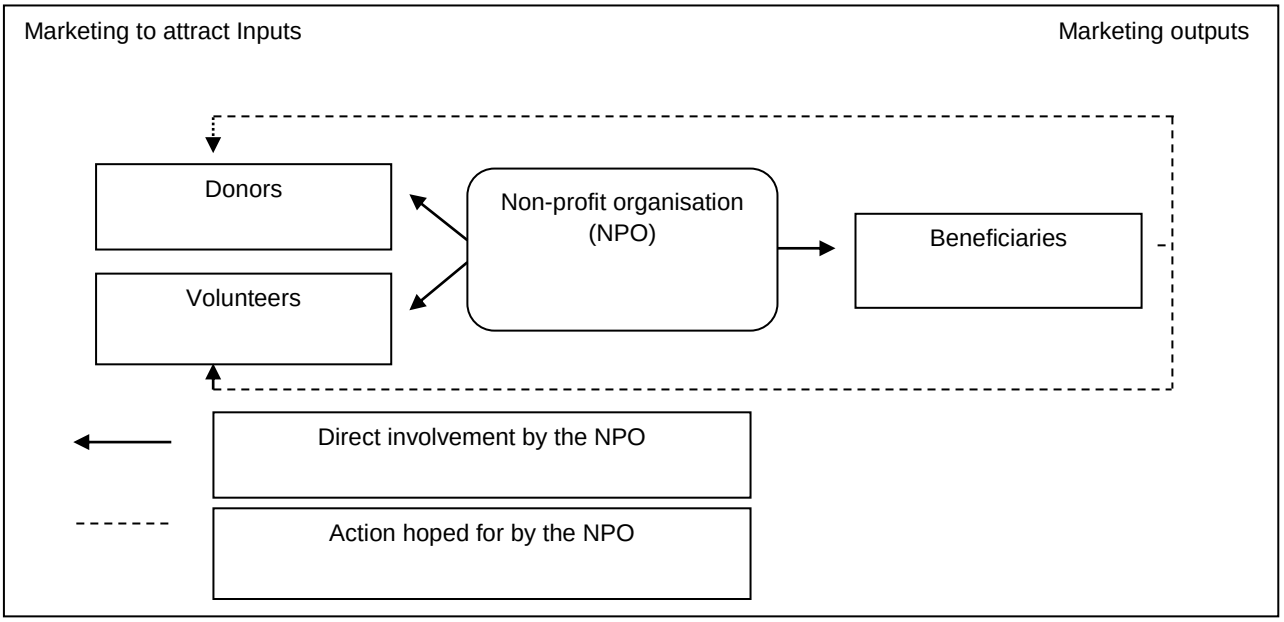
Special attention is given to the 'social services' and 'animals' subgroups as a result of this research focusing on non-profit organisations that specialise in child welfare and animal welfare. More specifically, the research study focuses on non-profit organisations involved in supporting children with serious illness and the protection and conservation of wildlife.

2.3.2 Supporters of the non-profit sector

As mentioned earlier, non-profit organisations have the responsibility of fulfilling social needs that are neglected by the private sector and government, thereby forcing non-profit organisations' to rely on voluntary public support in the form of monetary and non-monetary involvement (Mitchell & Taylor, 1997). It is important that marketing techniques are adapted to address the fulfilment of social needs. Firstly, non-profit organisations should provide a product or service. Secondly, non-profit organisations should manage functional tasks with the intention of receiving resources from the public in order to provide these products or services.

As a result, the non-profit industry is faced with two important operational tasks in order to ensure financial stability and success. In addition to appealing to government agencies as well as the general public for support, non-profit organisations need to market themselves to the beneficiaries (or potential beneficiaries) and supporters such as volunteers and donors (Lamb *et al.,* 2008; Bruce, 1995). Figure 2.1 illustrates the two streams at which marketing efforts should be directed by non-profit organisations.

Figure 2.1: Streams at which marketing efforts of non-profit organisations should be directed



Source: Lamb *et al.* (2008)

Firstly, marketers of non-profit organisations appeal to and attract beneficiaries. A beneficiary refers to any individual who receives a service or benefit from the work of an organisation free of charge or at a subsidised rate (Campbell, Lambright and Bronstein, 2012; Sargeant & Bennett, 2005). Managers should clarify the key objective and mission of the non-profit organisation as well as the type of relief and aid that needs to be provided in order to alleviate the circumstances that the beneficiaries could be involved in (Lamb *et al.,* 2008).

Secondly, the marketing activities that need to be performed in order to attract inputs from supporters such as donors and volunteers are considered as more challenging tasks. There are different approaches that should be considered before appealing to donors and volunteers considering that there is a significant difference between these two inputs (Lamb *et al.,* 2008).

Bruce (1995) investigated the structural dimensions of non-profit supporters. Bruce (1995) divides non-profit supporters into four groups namely beneficiaries, supporters, stakeholders and regulators. Table 2.5 illustrates the different customer groups of non-profit organisation with examples of each customer group in order to provide a clearer understanding of the types of

individuals to which non-profit organisations appeal. Given the nature of the study, specific focus is granted to the supporter group.

Table 2.5: Supporters of non-profit organisations

Beneficiaries	Supporters	Stakeholders	Regulators
Clients	Donors	Staff	Government inspectors
Students	Volunteers: Fundraisers and workers	Board members	Local community
Members	Purchasers	Representatives	Charity commission

Source: Adapted from Bruce (1995)

Supporters are defined as individuals who provide resources to a non-profit organisation (Bruce, 1995). The largest subgroup of the supporter group is known as 'donors'. There are two main types of donors, namely fund donors and donors of gifts-in-kind. Fund donors refer to foundations such as corporate institutions, family members, community and general, business enterprises, government funds and individual funds (Lamb *et al.,* 2008). Individuals who raise money for non-profit organisations can donate on a once-off basis or alternatively individuals can donate on a regular basis (Edison & German, 2004).

Another group classified as supporters are people or organisations who buy non-profit services from organisations (Bruce, 1995). The volunteer group can be divided into fundraisers and workers. Volunteers undertake to provide specific services on behalf of the non-profit organisation. Volunteers, however, can be further divided according to day-to-day workers, day-to-day professional staff and non-paid board of directors or trustees (Bruce, 1995; Lamb *et al.,* 2008).

It is important for non-profit organisations to consider the differences between the supporter subgroups before approaching potential donors or volunteers. The marketing campaign must ensure that the goal of their organisation appeals to at least one of the donor or volunteer types. The mission of the organisation must accommodate the individuals' intention in order to generate voluntary actions (Lamb *et al.,* 2008).

According to Bruce (1995), there are many non-profit organisations that dedicate little time and attention to understanding individual behaviour, needs and perceptions. Donors and volunteers are of the most highly valued customer groups in a non-profit context (Bruce, 1995). This study seeks to investigate influential elements that encourage certain behaviour and actions from donors. In order to develop a theory in this regard, it is necessary to first review the theoretical framework concerning consumer behaviour, and to gain a better understanding of consumer decision-making.

2.4 GIVING BEHAVIOUR IN THE NON-PROFIT INDUSTRY

The biggest challenge for non-profit organisations is to persuade donors to give (Miller, 2014). The World Giving Index (2012), a publication of the *Charities Aid Foundation,* is a report that was compiled to provide insight into the scope and nature of giving around the world, more specifically in 146 countries. Three primary giving behaviours of individuals across the globe were measured. These measures are donating to charity, volunteering time and helping a stranger. Due to the nature of the current study, the donor participation rate was reviewed from a South African perspective.

2.4.1 Giving behaviour across the globe

Table 2.6 identifies the giving status from a global perspective. The percentages have been calculated by using a mean average of three measures namely donating money, helping a stranger and volunteering time over a five-year period (World Giving Index, 2012).

Table 2.6: Global giving behaviour over a five-year period

Giving behaviour	**2007 %**	**2008 %**	**2009 %**	**2010 %**	**2011 %**
Donating money	30	31	28	30	28
Volunteering time	21	21	18	20	18
Helping a stranger	47	45	44	47	45

Source: Adapted from the World Giving Index (2012)

From Table 2.6, it can be seen that, over the five-year period, the average participation rate in helping a stranger has remained constant but is higher than both the donating rate and the volunteering rate. During 2009, the participation rate of giving behaviour experienced an overall significant decline. A number of factors including the economic and political environment could be possible reasons for the decline. From the percentages presented in Table 2.6, it is clear that donor behaviour and volunteer behaviour calls for further attention.

According to the *Charity Aid Foundation*, a paper published by Cleggs and Pharoah (2005), draws on a comparison between giving behaviour on an international level. A comparison of non-profit sectors on an international scale reflects the current situation of society as well as the areas of assessment that need to be strengthened. Perspectives from an international level allow countries to compare individual giving levels against other countries and in turn, increase targets and challenges to remain competitive. Global communication allows donors to have access to

information on an international scale thereby creating maximum exposure to all non-profit organisations (Cleggs & Pharoah, 2005).

2.5 THE IMPORTANCE OF A REVIEW OF SOUTH AFRICAN NON-PROFIT ORGANISATIONS

The current statistics of charitable giving on a global scale identify the levels of participation across 146 countries. Three primary giving behaviours namely donating, volunteering and helping a stranger in a South African context was reviewed in order to understand the current level and perception of giving in the South African non-profit sector. Additional research focusing on basic giving behaviour in South Africa was conducted identifying what people give, why people give and to whom people give.

Further research based on the non-profit sector in South Africa is required in order for managerial tasks to be identified, understood and implemented and to improve the current levels of individual involvement. The extent to which non-profit organisations need to appeal to the public is solely dependent on the way in which an organisation applies marketing principles.

2.5.1 The non-profit sector in South Africa

Recent reports on the global non-profit sector conclude that it plays an important role in the well-being of citizens worldwide (Salamon, Sokolowski, Haddock & Tice, 2013). The South African non-profit sector dates back to the 1980s during the apartheid era when the development of large non-profit organisations emerged (Heinrich, 2001). Although the non-profit sector continues to be a popular research focus for scholars, there has been very little research conducted on the status of the non-profit sector in South Africa prior to 2000.

A South African-based research paper by Swilling and Russel (2002) was published as part of the Johns Hopkins Comparative Non-Profit Sector Study. The article, entitled '*The scope and size of the non-profit sector in South Africa*', has proved to be the seminal article that has contributed significantly to the country's understanding of its citizen sector (Racionzer, 2013). The article used comparative data in 28 countries from the non-profit sector with a specific focus on South Africa.

In addition, Everatt and Solanki (2005) conducted a study entitled '*A nation of givers? Social giving among South Africans*' which concentrated on individual-level giving in terms of donations and volunteering in South Africa. This study, along with Swilling and Russel's (2002) research on the state of the non-profit industry in South Africa, complement each other and remain the seminal articles on the non-profit sector in the country.

The principal findings from both these research papers by Swilling and Russel (2002) and Everatt and Solanki (2005), illustrate the size and scope of the non-profit sector in South Africa, and

confirm the practical and academic significance of research of this nature. Some of the key findings of the abovementioned studies are revised below.

The South African non-profit sector is a key contributor to the nation's economy (Swilling & Russel, 2002). In 1998, the total operating expenditure of the non-profit sector in South Africa was estimated at R9.3 billion. In 1999, the total number of employees in the non-profit sector was higher than the number of employees in other major economic sectors. Table 2.7 illustrates the size of the employment workforce in the non-profit sector compared to workforces in other sectors of the economy.

Table 2.7: Number of full-time employees in the South African non-profit workforce compared to employees in other economic sectors

Sector	Number of full-time employees
Non-profit sector	645 316
Mining industry	534 000
Public servants in government departments	436 187
Electricity, gas and water	309 203
Construction	301 371
Transport, storage and communication	267 779
Financial intermediation, insurance and real estate	218 378

Source: Swilling and Russel (2002)

It is evident from Table 2.7 that the non-profit sector has the highest number of employees in comparison to other economic sectors. An analysis of the statistics with regard to the number of volunteers, full-time and part-time employees in the non-profit workforce in South Africa, are illustrated in Table 2.8.

Table 2.8: Number of employees in the South African non-profit sector

Employee category	Number of employees	Percentage of total
Full-time employees	305 011	47
Part-time employees	23 314	4
Volunteers	316 991	49

Total number of employees	645 316	100

Source: Swilling and Russel (2002)

It is clear from Table 2.8 that the number of volunteers in the non-profit sector (316 991) exceeds the number of full-time employees (305 011). Volunteers thus represent 49% of the non-profit workforce compared to 47% that are classified as full-time employees. Considering the significance and the large percentage of South African volunteers, it is evident that further research focusing on appealing to continued involvement of volunteers can be considered as beneficial to the non-profit industry in South Africa.

Racionzer (2013) attempted to compare the funding allocations of the non-profit sector over time. Research by Swilling and Russel (2002) identified the allocation of funding in the non-profit sector in 1998. Comparative results by Racionzer (2013) and Swilling and Russell (2002) suggest that the size of the income portion to the non-profit sector has more than doubled over the past thirteen years. As a result of the rapid growth of the sector and the subsequent increase in the level of competition between organisations, further research in the non-profit sector is required.

According to Statistics South Africa (2013), the biggest portion of income received by South African non-profit organisations can be divided into four primary categories namely government subsidies, local donations, fundraising collection and membership fees. Table 2.9 illustrates the core sectors contributing to the non-profit industry.

Table 2.9: Income of South African non-profit organisations

Government subsidies	39.8%
Local donations	19.5%
Fundraising collections	16.7%
Membership fees	14.6%
Sales	5.5%
Services income	3.5%
Foreign donations	0.4%

Source: Adapted from the Department of Social Development (2012) cited in Statistics South Africa (2013); Statistics South Africa (2013)

Table 2.9 provides evidence of the contribution level of government funding and local donations for the South African non-profit industry. Table 2.9 emphasises the importance of government

subsidies and local donations as majority contributors to the income of the non-profit sector in South Africa. Consequently, the study recognises the extent to which non-profit organisations rely on donations. This study therefore aims to identify marketing techniques to maximise the level of donations as a key financial resource to the industry.

2.5.2 Giving behaviour in South Africa

The study by Everatt and Solanki (2003) focused on the individual level of social giving among South Africans. A number of questions regarding basic giving behaviour of individuals across the country were formulated in order to understand what people give, why people give and to whom people give. Although results are not specific to the environmental sector, key findings relate to the giving behaviour of South African individuals. It is important to review previous research of this nature in order to understand the current behaviour associated with giving in South Africa with the intention of identifying key characteristics that motivate individuals to give.

It is interesting to note that 54% of respondents in Everatt and Solanki's study (2003) gave money to established charities and other causes, 31% of respondents gave food or goods to established charities and other causes and 17% of respondents volunteered their time. More respondents appeared to give to established charitable organisations rather than directly to the poor. The results show that among the individuals that gave money, an average of R44 per respondent was donated. Furthermore, it was found that, at the time of the study, South African individuals were more likely to give to local causes rather than to international aid organisations. The most deserving causes included children or youth, HIV/AIDS and the poor.

Respondents were required to indicate which causes or organisations they supported. Only 4% of respondents indicated that they donated towards animal welfare. It is clear from the research results presented by Everatt and Solanki (2003) that South African individuals who gave, were more allegiant to local causes, however, there was a low level of support towards the animal sector, highlighting the need for further research in this field (Everatt & Solanki, 2003: 15).

According to Cleggs and Pharoah (2005), South Africans contribute only 0.64% to the Gross Domestic Product. Table 2.10 shows the giving status per country in the Southern Africa region. A population figure is provided in addition to a calculated mean average percentage of three measures namely donating money, helping a stranger and volunteering. A ranking index of the Southern Africa region was calculated.

Table 2.10: The Southern Africa region: Countries listed by giving behaviour

Country	Population (Millions)	Donating money (%)	Volunteering time (%)	Helping a stranger (%)
Swaziland	1.2	20	27	58

Lesotho	2.0	10	16	69
South Africa	**51.19**	**15**	**19**	**55**
Botswana	2.0	6	15	46
Average regional score		**13**	**19**	**57**

Source: Adapted from the World Giving Index (2012)

As can be seen in Table 2.10, donating money in South Africa had the lowest participation rate compared to volunteering time and helping a stranger. The Southern Africa region was found to be the only region in Africa where the countries had a lower donation rate than the volunteering rate. According to Swilling and Russel (2002), the percentage of volunteers in South Africa constituted 49% of the workforce in the non-profit sector, emphasising the significance of volunteering. South Africa has a population of more than 50 million – which is much larger than the population of the other three countries in the Southern African region - yet similarities in the percentage scores in terms of giving behaviour are evident (World Giving Index, 2012).

In 1999, nearly 1.5 million volunteers dedicated their time and energy to non-profit organisations in South Africa. The percentage of volunteers comprising the workforce (49%) positively exceeded the international average of 35%. In the culture and recreation, advocacy and politics, and religious sectors, the number of volunteers also exceeded the number of full-time employees in those sectors.

For the purpose of this study, the environmental sector and the social services sector were chosen as the main research topic, with the sector's sub-categories of animal welfare under the environment as the primary focus as well as child welfare under social services. This decision was motivated by the findings of Swilling and Russel (2002), that the number of volunteers in the South African environmental sector was fewer than half the number of the sector's full-time employees. It is thus evident that more research and efforts towards attracting volunteers in the environmental sector are required.

As a contrast, findings by Swilling and Russel (2002) indicated that the most deserving causes were those involved in supporting children thus a main focus in the social services sector was chosen.

In an attempt to explain the key activities and tasks, Table 2.11 illustrates the areas of work in the environmental sector. The special focus remains on animal welfare. Additionally, Table 2.11 illustrates the areas of work in the social services sector which specific focus on child welfare and child services.

Table 2.11: Categories of work in the social services and environmental sector in South Africa

Non-profit sector	Major categories of work	Number of non-profits in the environmental sector	Total number of subgroups
Environment	Animal protection	2766	
	Animal protection/Welfare		269
	Wildlife preservation and protection		148
	Veterinary services		2349
Social services	Social services	13 519	
	Child welfare, child services		4963
	Youth services, youth welfare		2291
	Family services		2385
	Services for the handicapped		1093
	Services for the elderly		1242
	Self-help and other services		1545

Source: Adapted from Swilling and Russel (2002)

Table 2.12 provides a summary of the financial income and expenditure of the non-profit sector in South Africa.

Table 2.12: Income and expenditure of the non-profit sector in South Africa

		Million in Rands	Percentage of total
Income	Fee, sales, and dues	4 029	29
	Investment income	668	5
	Private sector donor income	**3 487**	**25**
	Government grants and contracts	5 827	42
	Total income	**14 011**	**100**
Expenditure	Salaries and wages	5 313	57
	Other	4 042	43

	Total expenditure	**9 355**	**100**

Source: Swilling and Russel (2002)

Table 2.12 shows that 25% of the non-profit sector's revenue comes from donors, illustrating the extent to which the non-profit sector is dependent on donor support.

2.5.3 Dilemmas facing the non-profit sector in South Africa

The South African non-profit sector is faced with the challenge of a society where increasing levels of poverty are prevalent as a result of high unemployment throughout the country (National Development Agency: Department of Social Development, the Research and Development Directorate Research, Policy and Networks Unit, 2013). In order to address these and other challenges, managers are forced to increase the use of innovative marketing practices and effective communications to attract, recruit and retain donors for donations (Kinnell & MacDougall, 1997). Currently, non-profit organisations have adopted traditional marketing practices to raise awareness and support (Mainwaring & Skinner, 2009).

2.5.3.1 Increasing competition among non-profit organisations

The non-profit sector has experienced rapid growth in both industry size and functionality, illustrating the increasing importance of the sector (Salamon & Anheier, 1996; Sargeant, 1999; World Giving Index, 2014). As a result, organisations in the non-profit sector function in a heavily competitive environment (Sargeant, 2001).

Consistent funding from a reliable donor provides sustainability for non-profit organisations enabling organisations to deliver more services and meet the demands of the beneficiaries (National Development Agency: Department of Social Development, the Research and Development Directorate Research, Policy and Networks Unit, 2013). Survey results on South Africa, presented by the National Development Agency: Department of Social Development, the Research and Development Directorate Research, Policy and Networks Unit (2013) indicate that revenues are dramatically declining as a result of inconsistent long-term funding based on the assumption of neglect from government funding and corporate sector funding

The current low level of donations has prompted many marketing managers of non-profit organisations to explore new measures to motivate and influence individual involvement (World Giving Index, 2012). The average level of consistent funding has dramatically declined, creating uncertainty and the inability for long-term planning (National Development Agency: Department of Social Development, the Research and Development Directorate Research, Policy and Networks Unit, 2013).

2.5.3.2 Increased demands from non-profit organisations

Since South Africa gained its independence in 1994, the country has preserved a rich diversity in contributing to the development of the non-profit sector and sustaining the support to address the transforming societal demands (National Development Agency: Department of Social Development, the Research and Development Directorate Research, Policy and Networks Unit, 2013). Although there are positive developments, there are many challenged factors that are in need of support development to overcome the constraints that are placed on the sector.

As mentioned earlier, the non-profit industry experiences an increasing demand for their social services and contributions. Individual giving in many countries are failing to keep up with the increasing demands of non-profit organisations (Sargeant, 1999). As a result, the non-profit sector is continuously facing financial uncertainties and operational dilemmas (Helmig *et al.*, 2004). In order for non-profit organisations to survive and succeed, marketing managers need to understand modernised and competitive ways of appealing to individuals for financial support (Kotler & Andreasen, 1991).

In recognition of the challenges that face non-profit organisations, namely increased competition among organisations in the non-profit sector, and a decrease in government and private funding, further research relating to the identification of effective communication methods are necessary. This topic formed the primary purpose of this study and will be further explored in chapter three.

2.6 SUMMARY

This chapter defined the concept of the non-profit sector, and provided a classification system of the sector. The current status of the non-profit sector with specific focus on the dilemmas it faces in South Africa were also examined, followed by a comparative discussion of the current level of giving of individuals across the globe referring to South African individuals in particular. The chapter concluded with a comprehensive comparison of the different types of non-profit organisations in the South African non-profit sector, with the main focus on the environmental sector, and more specifically, animal welfare as well as social services with specific focus on child welfare.

Chapter three will discuss the importance of communication where the focus falls on feedback and the design of effective messages as key components of the communication process. Attention is given to the importance and evolution of communication, the application of communication in a non-profit context, the feedback process and the theories concerning effective message design.

CHAPTER THREE

MARKETING COMMUNICATION AND THE NON-PROFIT SECTOR

3.1 INTRODUCTION

In recent years, the marketplace has become crowded and cluttered as a result of the expanding range of products and services. One of the challenges is that consumers are unable to differentiate between brands that possess functional similarities. A lack of relevant theoretical research on channel communication has resulted in difficulties in providing efficient strategies for channel communication managers (Mohr & Nevin, 1990). Consequently, Keller (2001) emphasises the importance of communication as the channel in which to identify point-of-differences that distinguish one brand from another. More specifically, marketing communication allows products and services to stand out and, in turn, encourage consumers to appreciate the unique value of these products and services. In a non-profit environment, the same approach can be applied.

The consolidation and delivery of a number of marketing-related elements including pricing, product development, distribution and communication is required to meet consumer needs and complete a business exchange (Kotler & Levy, 1969). In a non-profit context, the design of an effective communication strategy is a primary resource that should be implemented to maximise favourable responses in the form of donations from individuals (Hibbert & Horne, 1996). Consequently, the communication process is an integral part to the research.

For every non-profit organisation, secure resources in terms of public support relies on the non-profit organisation's ability to effectively communicate a message that will appeal to and persuade individuals to engage with their cause. This chapter provides a detailed approach to the introduction and importance of communication, the feedback process and the design and development of effective messages.

3.1.1 The evolution of communication from the marketing mix

The marketing mix is a conceptual framework that facilitates the alignment of an organisation's product or service offerings with the needs of the consumer (Goi, 2009). According to Goi (2009), the marketing mix concept was first termed in 1953 by Borden (1964). The concept referred to a set of elements that were considered as enablers for organisations who had the intention of receiving a response of sort from individuals in the market. Borden's (1964) marketing mix concept originally had twelve elements that McCarthy (1964) later condensed into four elements: product, price, place and promotion (Goi, 2009; Duncan & Moriarty, 1998), known as the 4Ps.

According to Van Waterschoot and Van den Bulte (1992: 83-84), McCarthy's (1964) framework is considered as the 'dominant design' and has become the most commonly cited and practised classification system in marketing literature. Lauterborn (1990) proposed a new classification

namely the 4Cs classification model that adapted the 4Ps framework into a more consumer-oriented approach. The 4Cs model was designed for marketing practice and focuses on the demand side or the customer-centric approach whereas the 4Ps model considers the supply side in marketing practice (Lauterborn, 1990).

The 4Cs model, namely commodity, cost, communication and convenience was derived from the 4Ps framework, namely price, product, place, and promotion. Considering the nature of the non-profit sector, reliance on communication in the appeal for external support from individuals is fundamental to the success and survival of the organisations. The application and adaption of the marketing mix and the 4C model in a non-profit context is discussed in the following section.

According to Shapiro (1973), there are four key business concepts that form the principles of marketing in the non-profit context. These four principles are closely related and can be identified as: self-interest, marketing tasks, the marketing mix, and distinctive competence. For the purpose of this study, a detailed explanation of the marketing mix, specifically the communication aspect, is discussed. Table 3.1 summarises the four principles and the explanations of each principle.

Table 3.1: Key business concepts for marketing thought in a non-profit context

Principle	Explanation in a non-profit context
Self-interest	The self-interest aspect of the transaction or exchange, in which both the buyer and the seller believe they are receiving greater value than they are giving up.
The marketing task	The marketing task stresses the importance of satisfying customer needs.
The marketing mix	The marketing mix refers to the elements or tools that marketers use, such as advertising, public relations, channels of distribution, pricing and product policies.
Distinctive competence	The idea of distinctive competence, in which the company concentrates on what it does best to maximise profits.

Source: Adapted from Shapiro (1973)

Shapiro (1973) suggests that the nature of the marketing tasks for a non-profit organisation can be classified as resource attraction, resource allocation and persuasiveness. Resource attraction – the most established and sophisticated marketing function - refers to non-profit organisations' recruitment of contributors by means of fundraisers as an example. Resource allocation refers to deciding who the target market is and what the organisation is going to offer. Non-donor persuasion involves encouraging individuals to engage in an activity relevant to the non-profit organisation in the form of contributions.

The communication element is the most relevant function in terms of both persuasiveness and resource attraction where persuasiveness is primarily a communication task. As discussed later in the chapter, Block and Keller (1997) emphasise the importance of message vividness when

persuading individuals. It is thus important that non-profit organisations tailor their communication approach whilst appealing to donor persuasiveness.

The marketing mix concept has received both interest and criticism and requires further research. For the purpose of this research, the 4Cs model is most applicable as the communication element is an integral aspect of the research. However, as a result of the ever-changing communication techniques, an assessment by researchers of the market is required to align communication practices with the current trends in the marketplace.

3.1.2 The changing role of integrated marketing communication

Marketing communication can be termed as communication by a marketer that informs, persuades, incites and reminds potential buyers of a product in order to influence their opinion or elicit a response (Keller, 2001; Lamb *et al.,* 2008). Communication provides a channel that allows organisations to establish a conversation about product or service offerings to consumers (Keller, 2001). Cant, Strydom, Jooste & du Plessis (2006) define the concept as “the process by which the marketer develops and presents an appropriate set of communications stimuli to a target audience with the intention of eliciting a desired set of responses”.

In recent times, marketing communication has experienced the disintegration of traditional media (satellite or multiple television channels) as well as the emergence of non-traditional media, promotions and alternatives (billboards, in-store advertising and the internet) (Duncan & Caywood, 1996; Keller, 2001). Consequently, modern day marketers are entitled to utilise a broader spectrum of communication options suitable for their brand. Social media is used as a limitless communication channel with extensive reach across the globe. Non-profit organisations have also turned to social media as a primary marketing channel due to low-costs and ease of access. According to a non-profit communication trend report by Miller (2015), managers of non-profit organisations prefer websites, Facebook and e-mail as primary communication channels.

However, as a result of ease of access to available social media channels by means of mobile applications and the Internet, the online space is becoming crowded. Consequently, non-profit organisations are faced with the challenge of developing unique and innovative communication campaigns to create an overbearing presence in recognition of competing organisations in the sector.

Researchers have analysed the effectiveness of communication options, but without recognising the following: Firstly, when considering the different communication options and the development of communication programmes, marketers should be consulted; and secondly, interactions may exist among the communication options that simultaneously affect consumer responses (Keller, 2001). Consequently, an integrated marketing communications (IMC) approach evolved.

3.1.3 The importance of communication for non-profit organisations

A study by Dolnicar and Lazarevski (2009) considers communication as an important marketing strategy that can be adapted by non-profit organisations. According to Henley (2001), some of the best integrated marketing communication techniques come from the non-profit sector. Yet, communication by non-profit organisations poses an inherent challenge. Unlike for-profit organisations that have a key target market, a tangible product and the end goal of making a profit, non-profit organisations have multiple non-financial objectives that are difficult to measure (Henley, 2001). Furthermore, there are communication needs to be directed to multiple role players such as clients, stakeholders, board members and donors. Non-profit organisations should ensure that communication efforts to all these parties are balanced and that the objectives with limited resources are achieved. In the light of these difficulties, a priority for non-profit organisations is to ensure that their message is communicated to their target audiences in the most effective manner possible (Henley, 2001).

Non-profit organisations also face the challenge of having to deal with fierce competition and depleting resources. Consequently, it is becoming increasingly difficult to encourage support from individuals. In order to succeed in this environment, non-profit organisations rely on effective strategies by means of an integrated marketing communication approach that will appeal to donors (Bendapudi *et al*., 1996).

A recent study by Dolnicar and Lazarevski (2009) pointed out that only a small portion of non-profit mangers identified the importance of strategic marketing. Most marketing activities performed by these role players involve promotional techniques of sort (Dolnicar & Lazarevski, 2009). As a result, managers are in need of revised and effective communication methods in order to promote their organisation and maintain current forms of income.

According to Cant *et al.* (2006) it is imperative that non-profit organisations develop and implement an effective communication strategy in order to build long–term, supporting customer and stakeholder relationships. These communication strategies may include: 1) identifying individuals who are interested and who will support the non-profit organisation; 2) building an image attractive to the public; 3) developing communication messages that will appeal to the public; and 4) communicating hereafter through popular channels. As a result, it can be assumed that a marketing-oriented communication approach can increase the effectiveness of non-profit organisations in achieving financial stability and long-term individual support (Dolnicar & Lazarevski, 2009).

3.2 THE COMMUNICATION PROCESS

Communication can be defined as an act of transferring a message from one source to another whilst creating a meaningful understanding (Andersen, 2001: 168). Communication is an activity

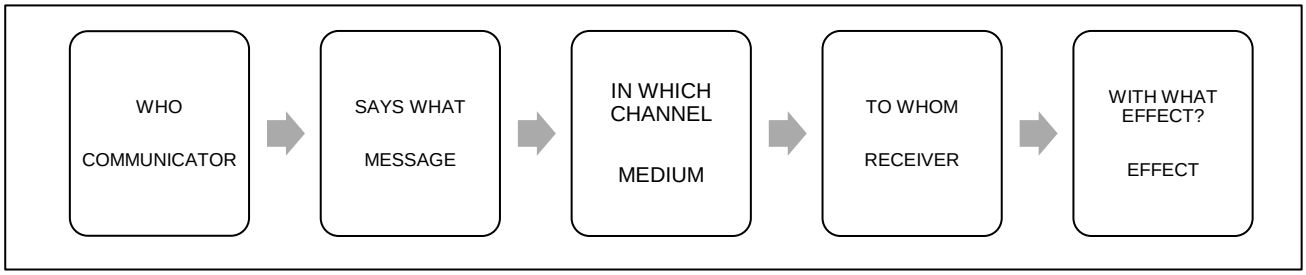
that connects people and creates relationships whilst developing, organising and disseminating knowledge (Duncan & Moriarty, 1998). Schiffman and Kanuk (2009) define communication as "the transmission of a message from a sender to a receiver via a medium (or channel) of transmission".

Castells (2013) defines communication as the "sharing of meaning through exchange of information". The diversity of communication options for marketers empowers marketers to gain an understanding of each option in order to maximise their offerings using the most effective channel (Keller, 2001). Marketing communication is designed to make consumers aware of an offering, to encourage purchase or commitment, to create a positive attitude towards the brand or offering, and to show the benefit or value that the offering can add for the consumer.

3.2.1 Components of communication

The traditional communication models and first thoughts on the communication concept were presented by Lasswell (1948) and Weaver (1949). According to Lasswell (1948), the model reflects the process of communication as a function to society, while Lasswell's (1948) definition of communication includes five questions in the model. The communication model is illustrated in Figure 3.1.

Figure 3.1: Lasswell's communication model

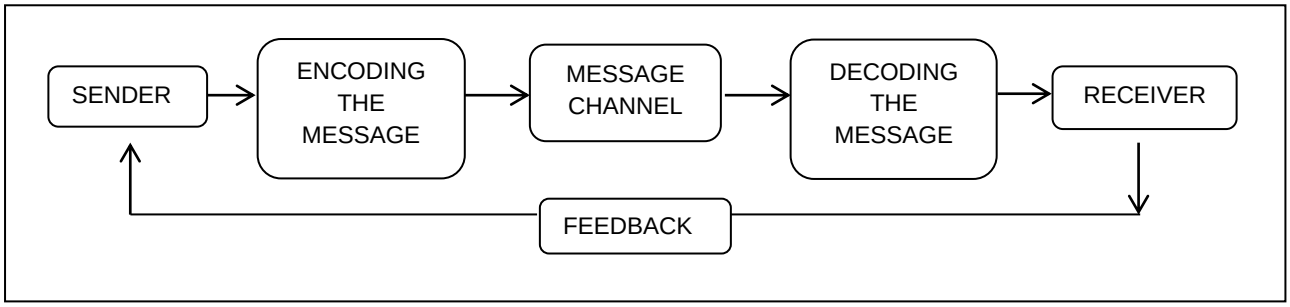


Source: Lasswell (1948)

Although the communication model by Lasswell (1948) is a suitable framework for almost all types of communication, the element of feedback is not mentioned. For the purpose of the current study that focuses on feedback, a further review of the communication process is required.

Since the early model by Lasswell (1948), a seminal article by Weaver (1949) introduced additional thoughts towards the communication concept. This 'communication system' by Weaver (1949) was adapted by Lamb *et al. (*2008) and is illustrated in Figure 3.2.

Figure 3.2: Communication process



Source: Adapted from Lamb *et al.* (2008)

Figure 3.2 illustrates the four essential building blocks of the communication model, namely sender, receiver, medium and message (Lasswell, 1948; Weaver, 1949; Duncan & Moriarty, 1998; Mohr & Nevin, 1990; Lamb *et al.,* 2008). The authors state that communication is a transmission process through a mode or channel. The process includes the message (content), the channel, feedback and communication effects. The element of feedback, which is essential to the communication process and the primary focus of this study, refers to alerting the sender as to whether the message was received (Schiffman & Kanuk, 2009; Duncan & Moriarty, 1998; Lamb *et al.,* 2008). According to Castells (2013), the communication process can be defined by the characteristics of the senders and the receivers of information in accordance with their cultural profiles.

The sender or source is the originator of the message (Lamb *et al.,* 2008; Duncan & Moriarty, 1998). The receiver of the communication in most cases is likely to be a customer or a member of a target audience. The message, also known as the product of the communication, is the binding element in the relationship between the sender and the receiver (Duncan & Moriarty, 1998). In a non-profit context, the sender is the non-profit organisation and the receiver is the donor. The medium, otherwise named the communications channel, can be impersonal or interpersonal (Lamb *et al.,* 2008).

The message that is transmitted during the communication process can also be referenced as the content of the communication (Mohr & Nevin, 1990). The message can be verbal (written) or non-verbal (illustration, visual) or a combination of the two approaches involvement (Schiffman & Kanuk, 2009; Weaver, 1949). According to Schiffman and Kanuk (2009), a verbal message combined with a non-verbal message is more persuasive. The transmission of the message requires a communication channel (Lamb *et al.,* 2008; Mohr & Nevin, 1990).

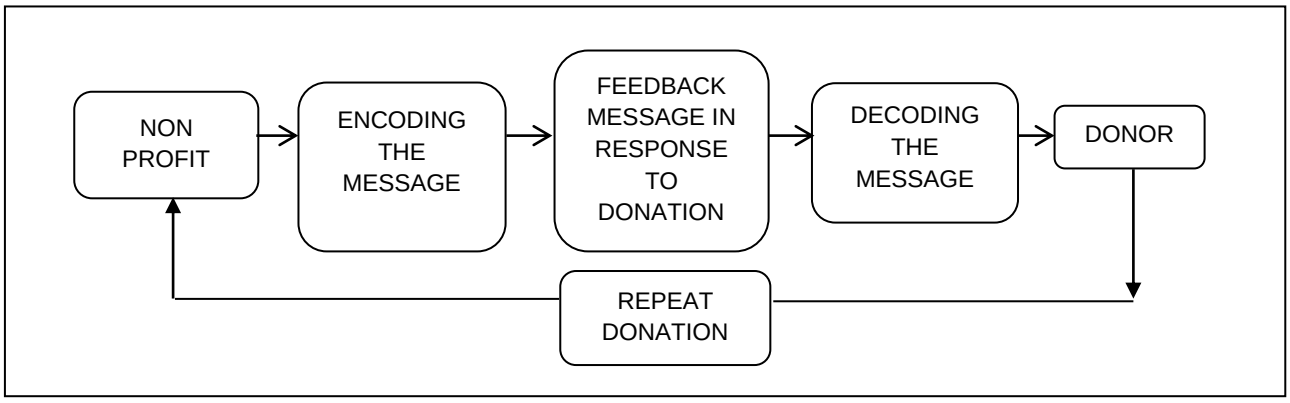
Mehrabian (1972) describes non-verbal communication as the involvement of a number of symbols such as gestures and expressions that are difficult to conceptualise. Mehrabian (1972) refers to non-verbal communication as the “subtle ways in which people convey their feelings”. A new paradigm, referred to as the ‘brain-body-mind-society’ reveals new views about the nature of human communication, thought, memory and emotion. It is believed that human communication

occurs non-verbally through gestures, posture and eye contact. These types of non-verbal communication are seen as channels whereby individuals exchange meanings and messages (Zaltman, 2003).

Mehrabian's theory emphasises that the meaning of a communication message originates from the words that are spoken, the way in which the words are said and the accompanying facial expression and emotions. The essence of the theory extends beyond the reliance of using only words to convey meaning in a communication message.

Feedback is the receiver's response to a message (Lamb *et al.,* 2008; Duncan & Moriarty, 1998). Feedback can be direct, indirect or bidirectional (Mohr & Nevin, 1990). Indirect feedback relies on market research or analysis whereas direct feedback is sourced from the consumers. In a non-profit context, the feedback element (as shown in Figure 3.2) can be viewed as a donation given by a donor in response to a message communicated by a non-profit organisation. Figure 3.3 illustrates the same communication process, however, the elements have been adapted to suit a non-profit context. In addition, Figure 3.3 illustrates the occurrence of repeated giving after a donor has responded to a message of appeal via the process in Figure 3.2. Figure 3.3 thus focuses on how a donor responds once a message of gratitude or thank you has been received from the non-profit organisation using the communication channel.

Figure 3.3: The communication process in a non-profit context



Source: Adapted from Lamb *et al.* (2008)

To summarise: in line with Figure 3.2, Figure 3.3 shows the same communication process, but adapted to the non-profit sector. The sender has been substituted with the non-profit organisation that focuses on sending feedback messages to donors in response to a donation that has been made by the donor. A message of gratitude or thank you is communicated to the donor and sent via the message channel to the donor who has made a donation. The primary purpose of sending a message of gratitude is centred on encouraging donors to repeat a donation.

3.2.1.1 Communication language and consumer behaviour

Organisations dedicate their focused attention to communicating to customers “for verification that their message shapes beliefs, attitudes and behaviour” (Sela, Wheeler & Sarial-Abi, 2012). Little research has been devoted to identifying the impact of linguistic features on attitudes and persuasion. More specifically, singular wording can imply information about a relationship a consumer has with a specific brand, and consequently influence their perception or attitude towards that brand. Results from four experiments by Sela *et al.* (2012) indicate that the use of the pronoun ‘we’ instead of ‘you’ effects consumer perceptions towards a brand where an established relationship between the consumer and the brand is already in place.

Research by Krishna and Ahluwalia (2008), Luna and Peracchio (2002) and Zhang and Schmitt (2004) investigated effects of language on consumer behaviour, while Sela *et al.* (2012) examined the subtle effect of wording differences in marketing communication where the effect of various linguistic techniques on attitudes and persuasion levels was identified.

These authors suggest that the differences in wording can convey meaning into the relationships between the consumer and the brand in a positive or a negative light. More specifically, their research identifies that differences in language and wording in marketing communications can influence a consumer’s attitude towards a brand. The current study assesses whether differences in text message content influences individual physiological responses in a non-profit context. Although the differences in text messages are greater than subtle word changes, it is important to understand that slight differences in communication feedback can have an impact.

Limited research has been conducted on language variation towards consumer perceptions. Sela *et al.* (2012) considered this gap in the research by using four experiments to demonstrate the positive or negative impact that singular words such as ‘we’ or ‘you’ could have on consumer attitudes towards brands. The results of Sela *et al*. (2012) revealed that the effect of a singular word on the consumer’s attitude depends on whether the ‘closeness’ of the word is consistent with the expected interactions with the brand.

3.2.1.2 A neuromarketing approach in understanding communication

Albert Mehrabian (1972), in his study of human communication, identified that 7% of a message was derived from words, 38% was derived from intonation and 55% from the facial expression or body language. It is thus reasonable to assert that most communication is not captured by means of words, but instead by identifying insights from parts of the mind that can provide a guide to predicted behaviour.

Neuroscience offers a new level of depth and precision by accessing subconscious responses to stimuli by probing minds without cognitive or conscious participation from respondents (TNS South Africa, 2014; Morin, 2011). According to TNS South Africa (2014), neuromarketing examines the

effectiveness of communication elements in detail. The current study makes use of a neuromarketing methodology to identify the influence of communication messages through physiological responses in order to predict behaviour.

3.3 THE INFLUENCE OF INTEGRATED MARKETING COMMUNICATION ON CONSUMER BEHAVIOUR AND CONSUMER DECISION-MAKING IN A NON-PROFIT CONTEXT

Considering the changes and trends in the modern day marketplace, traditional marketing principles no longer secure a competitive advantage for organisations. Many organisations are now embarking on an integrated marketing communication (IMC) approach instead (Duncan & Caywood, 1996).

The concept of integrated marketing communication started in 1990 when organisations discovered a need for strategic integration of promotional tools (Cant, *et al.,* 2006; Belch, Belch, Kerr & Powell, 2003; O'Guinn, Allen & Semenik, 2009; Mihart, 2012). Integrated marketing communication is based on the marketing mix elements, namely price, product, place and marketing communication (Mihart, 2012). The integrated marketing communication approach thus emphasises a communication effort and a need for synergistic messages.

The main objective of integrated marketing communication is to develop an effective way to satisfy customers through communication. Identifying a communication channel that has the potential to influence consumer behaviour is a core marketing activity with an end goal of developing marketing messages that reach and appeal to target audiences (Mihart, 2012). An integrated marketing communication approach is distinct from the marketing mix, however, it is a holistic concept that makes use of the marketing mix elements to develop relationships and send messages to customers.

In addition, integrated brand promotion extends even beyond integrated marketing communication by using communication tools such as advertising in the most coordinated way to build and maintain brand awareness, brand identity and brand preference. Integrated brand promotion recognises the fact that co-ordinated promotional messages require both brand building traits and communication effects (O'Guinn *et al.*, 2009).

In a non-profit context, it is important that marketing managers adopt an integrated marketing communication approach as the channel that carries a message to donors, thus developing and strengthening the relationship between the non-profit organisation and the donor. Addendum C provides a holistic picture of the integrated marketing communication approach and its influence on consumer behaviour and consumer decision-making. According to Hibbert and Horne (1997), donor decision-making follows a similar pattern to the consumer decision-making process. Thus, for the purposes of this study, the consumer is considered as the donor.

As mentioned earlier, the communication efforts by marketers who adopt an integrated marketing communication approach should extend beyond merely sending a message. The main focus is on building brand awareness. In a non-profit context, it is important for marketing managers to understand that an integrated marketing communication approach is a holistic process that can guide non-profit organisations to use their limited resources conservatively and in an appropriate manner. The implementation of a holistic plan and strategic process thus focuses on building a brand whilst reducing the risk of unnecessary expenditure and wasted resources.

3.3.1 The influence of integrated marketing communication on consumer behaviour

The integrated marketing communication approach makes use of the four fundamental components of the marketing mix and is reflected in an integrated communication strategy and a communication plan. As can be seen in Addendum C, each component of the marketing mix illustrated in Block 1, influences the components of consumer behaviour shown in Block 2 (Mihart, 2012). The consumer behaviour process is considered as necessary in order to understand the interactions between the integrated marketing communication components and to validate the model provided in Addendum C. A summarised explanation of the way in which integrated marketing communication influences consumer behaviour follows next.

The findings by Mihart (2012) indicate that product characteristics, distribution methods and price influence perceptions of consumers, based on the marketing communication of the product (Allison & Uhl, 1964). The information transmitted from the integrated marketing communication components support the learning process. Attitudes are also influenced by each component of the marketing mix. The creation and development of consumer attitudes is a primary goal of integrated marketing communication. Hawkins and Mothersbaugh (2009) explain motivation as a complex process that has the ability to influence behaviour. The marketing communication component influences motivations the most in comparison to the remaining components in the mix. A detailed discussion regarding the psychological components of consumer behaviour features in chapter four.

3.3.2 The influence of integrated marketing communication on the consumer decision-making process

The relationship between integrated marketing communication and the consumer decision-making process is based on feedback. Feedback provides the channel through which all integrated marketing communication components can undergo scrutiny and revision in order to improve current standards, consequently confirming the importance of integrated marketing communication for consumer decision-making. Therefore, it is clear that marketing managers in the non-profit environment should not only make use of integrated marketing communication, but also have an in-depth understanding of the consumer decision-making process.

A thorough understanding of each process enables marketing managers of non-profit organisations to develop a strategic communication framework with an end goal of appealing for support and engaging with donors. In addition, for the purpose of this research, feedback is considered as the most critical component. It links the donor decision-making process to the communication plan and provides the non-profit organisation with an opportunity for continuous improvement in current communication methods (Mihart, 2012). The integrated communication model in Addendum C illustrates the influence of consumer behaviour on the consumer decision-making process. However, an explanation of consumer behaviour and the consumer decision-making process is discussed in detail in the following chapter that also examines donor behaviour and donor decision-making. Addendum B illustrates the combined approach of the two processes.

3.3.3 The relevance of the communication process for the study

The adapted communication process serves as a holistic view of the purpose of this study as the focus is on identifying the most effective feedback message of thank you's that could encourage donors to engage and commit to donations in future. The need for a review of the effect of language on consumer behaviour introduces the use of neuromarketing as the primary methodology that was used to assess effective feedback communication messages in the current research. According to Schiffman and Kanuk (2009), feedback is an essential component of the communication process. As a result, a review and a discussion of the communication process elements, namely feedback and message design, is crucial and in line with the primary focus of the current research.

3.4 MESSAGE DESIGN AND THE NON-PROFIT SECTOR

Messages consist of a stream of sensory stimuli that collaborate with images to form a pattern that conveys a meaning. The understanding of the cognitive processing of communication messages has been under scrutiny by researchers for many years (Biocca, David & West, 1994). The type of message is central to any research regarding the levels of persuasion (Hardy, 2011).

Considering the continuous change in communication measures and trends, individuals' cognitive state of processing, understanding and reacting to communication messages is a popular research topic. As a result, communication experts are faced with the challenge of detecting the changes over time to adapt to current communication measures (Biocca *et al.,* 1994).

Individuals encounter numerous messages through advertising on a daily basis and from a variety of sources (Buda & Zhang, 2000). As a result, advertisers are concerned about the effectiveness of their messages. In a non-profit context, organisations rely on fundraising, volunteer recruitment and campaigns in which individuals are encouraged to participate in supporting their cause. Non-profit organisations adopt message framing measures in which to articulate their messages to incentivise individuals to support their cause (Okada, 2014). According to Belch *et al.* (2003),

consumer perceptions of an organisation develop from messages that are received from the combination of communication efforts by the organisation such as publicity, promotion and price. It is important that a consistent image is portrayed in order to provide a unified communication approach.

Henley (2001) confirms that marketing communication is considered to have two goals. Firstly, it is required from marketers to establish the current awareness levels of consumers with reference to the communicating organisation. Secondly, it is required from marketers to identify a manner in which to enhance the relationship between the individual and the organisation. The ultimate goal is to communicate the message at the most suitable opportunity (Henley, 2001).

Frazier and Summers (1984) conducted research on direct and indirect communication strategies. Direct communication strategies are designed to have an impact or change the behaviour of the individual by requesting a specific action required by the source of the communication. For example, a direct strategy could include recommendations, promises, appeals and requests. Indirect communication strategies are designed to influence beliefs, attitudes and behaviours. However, a specific action is not required from the communication source. Examples of indirect communication content include information exchange and discussions with the intention of influencing an individual's attitude and behaviour (Frazier & Summers, 1984).

As a result of the findings of Frazier and Summers (1984), Mohr and Nevin (1990), categorise communication message content according to a direct or indirect approach. For the purpose of the current study, an indirect communication strategy was considered as the most suitable approach. The reason for this approach is that non-profit organisations communicate feedback messages with the intention of appealing to and influencing behaviour, yet no specific actions such as donations from individuals are directly requested.

A brief introduction to the importance of messages and message channels was introduced in the communication models by Weaver (1949) and reviewed by Lamb *et al.* (2008). A literature review that focuses on certain elements of message appeal in a for-profit context was considered in order to adapt practical theories to a non-profit context. A discussion to analyse the types of elements with reference to the communication of feedback messages for a non-profit organisation follow next. The topics that will be examined include message framing, message source and credibility, and message vividness.

3.4.1 Message definitions

Based on the comprehensive communication model by Schiffman and Kanuk (2009), messages are verbal or non-verbal; one-sided or two-sided, or factual or emotional. Cant *et al.* (2009) defines four steps in developing a creative message strategy. Three of the four steps involve the

generation and execution of a message. The three steps are message generation, message evaluation and selection, and message execution.

Firstly, message generation involves the development of an idea be communicated to an audience (Cant *et al.,* 2009). Secondly, message evaluation and selection involves conducting market research to establish what appeals best to a specific target audience. Lastly, message execution depicts the impact of the message depending on how and what has been said.

3.4.2 Message design and development

Prior to the design of a message, it is important that the target audience is defined. Four major decisions are made during the design phase of a communication message. Table 3.2 illustrates the four decisions.

Table 3.2: Four decisions in designing a message

Content	**What to say**
Structure	How to say it logically
Format	How to say it symbolically
Source	**Who should say it**

Source: Adapted from Decrop (2007)

For the purpose of the current research, the specific focus was to determine effective feedback message elements that would encourage and promote donor support for non-profit organisations. Attention was thus given to elements of message content and the source of the message. Further discussions on source credibility and message design theories are included in this chapter.

3.4.3 Theories relevant to message design

Conveying a message involves knowing the objectives of the message and understanding the target audience (Schiffman & Kanuk, 2009). The involvement theory highlights the important factors that need to be considered in the design of a message in communication material. Source credibility suggests that the effect of the message on individuals is based on a sense of trust and expertise projected from an endorser or a source (Domino, 2003). Source credibility can be considered as an important factor when designing a message. The elements of communication influence the way in which individuals make decisions and are persuaded to perform certain actions (Schiffman & Kanuk, 2009).

3.4.3.1 Source credibility theory

The credibility of a source is vital to consider when developing and designing an effective advertisement, because consumers are unable to experience a service or product before consumption (Clow, James, Sisk & Cole, 2011). Source credibility refers to the levels of perceived expertise and trust that a source or provider of information receives (Kelman, 1961; Buda & Zhang, 2000; Dholakia & Sternthal, 1977; Domino, 2003). Clow *et al*. (2011) refer to source credibility as the level of believability that an individual experiences when exposed to an advertisement with an endorser or spokesperson.

According to Domino (2003), information that individuals gain from a source is capable of influencing certain opinions, behaviour and beliefs. The process is known as the internalisation process (Erdogan, 1999). Internalisation occurs once the individual has accepted a message from a source based on the trust and perception that is portrayed (Giffin, 1967). A number of studies have been published that suggest a source with high recognition and respect is more likely to have a favourable effect on the consumer. However, elements of endorsements such as attractiveness and gender are not the primary focus of the current research.

When placed in a high-risk situation where the individual is uncertain about the potential outcome, a well-known source encourages a sense of surety as to the value of the product or service (Giffin, 1967). For example, individuals may be hesitant in donating money to a non-profit organisation whose image is not well-known. Instead, with the involvement of a familiar face, individuals may feel satisfied, convinced and more generous. The individual thus trusts the image of the source and agrees with the level of expertise that is demonstrated.

Furthermore, acceptance of a message portrayed also depends on the level of expertise the individual sees in the source. Kulkarni and Gaulkar (2005) define expertise as “the perceived ability of the source to make valid assertions”, and trustworthiness as “the perceived willingness of the source to make valid assertions”. Consequently, the acceptance of a message is directly affected by the level of trust and expertise that individuals receive from the endorser with regard to the prospective offering or cause (Kulkarni & Gaulkar, 2005).

The attribution theory deals with the way in which individuals form causal inferences (Folkes, 1988). The antecedents for the casual inferences include motivation, previous beliefs and information (Kelley & Michela, 1980). The attribution theory further suggests that a consumer’s exposure to an advertisement leads to an assessment of whether the message is an accurate representation or whether the message lacks credibility (Folkes, 1988; Mizerski, Golden & Kernan, 1979). According to the attribution theory, consumers discount the meaning of the message in a situation with low source credibility (Eagley & Chaiken, 1975).

According to the findings from a study by Dholakia and Sternthal (1977), the effects of manipulating the level of source credibility may only have an impact on attitudes when there is no reliance on the individual's own behaviour in making judgements. In this instance, behaviour is rather influenced by the antecedents of the message, thus providing redundancy to the level of source credibility. On the other hand, in situations where the individuals' actions determine their attitudes and judgements, the self-perception theory justifies that a low-credibility source promotes a more positive attitude in comparison to communication with a high-credibility source (Bem, 1972).

The authors' validate the need for further research that determines the relationships between an individual response after exposure to a message and the subsequent behaviours or actions that follow (Dholakia & Sternthal, 1977). The purpose of their research satisfies the suggestion by testing the influence of communication feedback messages on donors in order to encourage future involvement and supportive behaviour towards a cause.

Source credibility affects consumer attitudes and behaviour by having an impact on the way in which the information is processed (Petty, Cacioppo & Schuman 1983). Improving source credibility allows for the meaning and impact of a message to be enhanced (Arora & Arora, 2004). A study by MacKenzie and Lutz (1989) found that credible sources significantly affect consumer outcomes based on attitudes towards messages and in turn, purchase intention. Tormala, Brinol and Petty (2007) confirm that individuals are more confident in making decisions with the presence of a credible source, hence influencing and determining their persuasion levels.

Chaiken and Maheswaran (1994) argue that source credibility affects the validity of a message. A positive source represented in a message adds a more favourable attitude towards the message. Studies by Tormala *et al.* (2007) show that under high-elaboration conditions, source credibility can have an influence on the persuasion and confidence levels of individuals. Following the receipt of a message, it depends on the level of credibility as to whether the individual responds with a favourable attitude (Tormala *et al.,* 2007).

Findings by Petty *et al.* (1983) suggest that advertisements that contain low-involvement products and use endorsers or highly credible sources, are key determinants of attitudes towards the product. However, when an advertisement uses a high-involvement product, endorsers or credible sources have no effect on attitudes.

Craig and McCann (1978) believe that individuals are more likely to engage in behaviour and activities that support environmental causes after receiving a message from a credible source. Considering that there is little research on message framing and source credibility in the environmental field, the current research focuses on a message design, considering a message source for non-profit organisations, and more specifically the animal welfare sector.

Lindsey and Ah Yun (2003) posit that messages can possess credibility despite the source, while a study by Hardy (2011) assessed whether statistical messages are more credible than narrative messages. In order for a message to be perceived as credible, independent of a source, Lindsay and Ah Yun (2003) clarify that the message requires a certain level of factual and precise information to be considered as verifiable. As a result, messages with statistical information can be perceived as more informative and verifiable than narrative messages (Hardy, 2011; Lindsay & Ah Yun, 2003). On the other hand, a number of research studies have proved that narrative messages are more persuasive (Braverman, 2008; Reinhart, Marshall, Freeley & Tutzauer, 2007). According to Kopfman, Smith, Ah Yun and Hodges (1998), narrative messages appeal to human nature. The characteristics of a narrative message allow the readers to experience emotion and identify with the source of the information (Reinhart *et al.*, 2007). Kopfman *et al.* (1998) agree that narrative messages are preferred above rational messages.

Research suggests that source credibility and message credibility play an important role on the persuasion levels of individuals, depending on elaboration conditions (Tormala *et al.*, 2007). An additional study by Petty and Cacioppo (1979) suggests that increased involvement in a subject matter improves the importance of message content that in turn, promotes persuasion. Explanations of the involvement theory, the elaboration likelihood model and the levels of persuasion follow next.

3.4.3.2 Involvement theory

The involvement theory that asserts that, in a high-involvement purchase situation, individuals are more likely to perform active cognitive effort towards the advantages and disadvantages of the product (Schiffman & Kanuk, 2009). High-involvement product purchases require extensive communication to the target audience and an informative advertisement. However, with low-involvement product purchases, the consumer may not have recognised their needs prior to entering a shop thus advertising in-store is important (Lamb *et al.,* 2008). In contrast, in low-involvement purchase situations, individuals are more likely to focus on peripheral message cues. Previous research by a number of authors suggests that messages with high involvement have a greater personal meaning yielding a personal connection in comparison to a low-involvement message (Petty & Cacioppo, 1979; Krugman, 1965).

The elaboration likelihood model refers to a similar theoretical nature that considers involvement as a key factor in message processing (Petty, 2013). According to Zaichkowsky (2012), personal aspects affect the level of involvement between an individual and an object. Object characteristics that are manipulated lead to varying levels of involvement.

Van Riel (1995) comments on whether a low-involvement situation impacts the overall image of a non-profit organisation. A positive image of a non-profit organisation can act as a significant determinant of a donor-based income and can influence individual preferences towards a specific

organisation or brand. Van Riel (1995) suggests that a low-involvement image encourages individuals to make donations as little information processing is required.

3.4.3.3 The Elaboration Likelihood Model

According to Petty and Cacioppo (1986), the seminal article entitled '*The Elaboration Likelihood Model of Persuasion'* outlines a general theory that incorporates a change in attitude. This model is referenced in many research papers on communication elements and is believed to provide a conceptual method for organising, categorising and understanding the basic processes behind effective, persuasive communication (Petty & Cacioppo, 1986).

Addendum A is included as an integral part of the current study, as the study focuses on, amongst others, effective communication to individuals in the form of feedback messages in a non-profit context. A basic understanding of the processes of persuasion for individuals when exposed to communication messages with expected outcomes is therefore prudent.

According to Petty and Cacioppo (1986), and illustrated in Addendum A, the first form of persuasion results from the individual's truthful consideration of the information presented. This form of persuasion can be referred to as the central route of persuasion. The central route means a change in attitude as a result of information considered by an individual (Petty *et al.*, 1983). The second form of persuasion that is more likely to occur as a result of a cue, such as an attractive source, can be termed as the peripheral route of persuasion. The peripheral route leads to a change in attitude as a result of a positive or negative cue. The central route of persuasion is the more preferred outcome of the two (Petty & Cacioppo, 1986).

The elaboration likelihood model suggests that an individual's involvement level during message processing is a considerable factor when determining which route of persuasion is most likely to be influenced (Shiffman & Kanuk, 2009). According to Buda and Zhang (2000), the elaboration likelihood model suggests that there are a number of variables that can have different effects on the persuasion level of an individual.

Petty *et al.* (1983) simplify the elaboration likelihood by stating that different levels of persuasion occur depending on whether the elaboration likelihood of a communication situation is high or low. In a high-involvement situation, messages are personally relevant and individuals are more willing to engage in cognitive efforts that are necessary for processing messages. Petty and Cacioppo (1986) postulate that individuals with low-involvement follow the peripheral route by relying on message elements such as a spokesperson in order to make a purchase decision.

According to Petty (2013), the level of bias and objectivity in the information processing activity of an individual determines the level and direction of influence. In addition, information processing that requires less effort also affects an individual's attitude. It is important to understand the involvement theory and the elaboration likelihood model as both theories may influence the design

of the message and consequently the effect of communication campaigns and behaviour thereafter.

3.5 MESSAGE STRUCTURE AND PRESENTATION

Studies by Keller and Block (1995; 1997), Smith and Shaffer (2000) and Maheswaran and Meyers-Levy (2004) discuss message framing and message vividness from a for-profit perspective. However, limited research exists on message design for a non-profit context. Considering that the current research focuses on non-profit organisations, the techniques used in a for-profit environment were examined and adapted to a non-profit context.

3.5.1 Message framing

A study by Miller (2014) shows the implications of how non-profit organisations ask for donations in addition to how they market themselves to appeal to donors. Miller's (2014) results indicate a number of circumstances that persuaded individuals to give more, including the finding that individuals are likely to give more based on the way in which the message for appeal is framed. The judgement and behaviour of an individual can thus be influenced by the way in which information is presented or framed (Buda & Zhang, 2000).

Message framing has become a popular research focus for academics investigating advertising and persuasion levels (Shen & Dillard, 2007). Framing effect is based on the theoretical background of the prospect theory posed by Kahneman and Tversky (1979). The theory states that value is dependent on the gains and losses above the final assets in which the probabilities are replaced by decision weights. The prospect theory has inspired a substantial series of literature pertaining to message framing (Meyers-Levy & Maheswaran, 1991; Chang & Lee, 2009; Kahneman & Tversky, 1979; Buda & Zhang, 2000).

According to Chang and Lee (2010), message evidence has been widely used in framing research. McCroskey (1969) defines evidence as factual statements, objects or opinions. As mentioned previously, it has been clarified that messages require a certain level of factual and precise information to be considered as verifiable. As a result, messages with statistical information can thus be perceived as more informative and verifiable (Hardy, 2011; Lindsay & Ah Yun, 2003).

Additionally, quantifying a donor's responsibility encourages a feeling of connectedness, thus influencing the level of persuasion as a result (Smith & Berger, 1996; Petty & Cacioppo, 1979). According to Hardy (2011), framing messages can have an influence on an individuals' interpretation of social issues and can attribute responsibility towards supporting social issues. The literature has consistently proved that message evidence can lead to an increase in attitude change compared to a message with a lack of evidence.

3.5.1.1 Prospect theory

Message framing emphasises the presentation of one or two outcomes with the same value to different decision-makers (Chang & Lee, 2009). One outcome is positive when the individual can gain, while the other outcome is negative when the individual can experience loss (Chang & Lee, 2009; Levin, 1987). Marketers can engage in message framing by focusing on the benefits of a product or service known as positive message framing, or focusing on the benefits to be lost by not purchasing the product or service known as negative message framing (Shiffman & Kanuk, 2009; Ganzach & Karsahi, 1995; Leshner & Cheng, 2009).

In a for-profit context, according to Ganzach and Karsahi (1995), it is crucial for marketers to decide whether to use positive or negative message framing. Research focused on positive product attributes or benefits gained by using a product or, alternatively, negative product attributes or benefits lost by not using a product (Levin, 1987). According to Grewal, Gotlieb and Marmorstein (1994), positively framed messages can be defined as communication that emphasises the advantages and gains that can be experienced by a consumer. A negatively framed message highlights the potential losses to a consumer in a specific situation (Grewal *et al.,* 1994). Studies found that positively framed messages are more persuasive when there is little focus on information processing. Negatively framed messages were more persuasive when there was more focus on detailed processing (Meheswaran & Meyers-Levy, 1990).

Studies involving message framing associated with conservation behaviour have produced mixed findings (Kim & Kim, 2014). Lord (1994) found that negatively framed messages were more influential with reference to encouraging individuals to recycle. However, a study by Okada and Mais (2010) established that positively framed environmental messages were viewed as more favourable.

According to Folse and Grau (2007), message framing has been researched in many contexts; however, a study by these authors appears to be one of the first attempts in examining framing effects in a cause-related marketing context. Their results show that organisations need to consider the current level of involvement among targeted individuals before deciding whether to frame their messages in a positive or negative manner. Their second experiment revealed that positive message framing affected the perceived value and image of individuals who were less involved, however, actual behaviours were not influenced (Folse & Grau, 2007).

Kim and Kim (2014) examined the influence of message framing and source credibility on the attention, attitudes, environmentally friendly activities and behavioural intentions of customers towards messages concerning the protection of the environment. The experimental design of the study compared a positive and a negative message frame and a credible and non-credible message source. Results revealed that the respondents in the study, namely customers, reacted

most positively to the messages that had a positive message frame and a credible source (Kim & Kim, 2014).

According to Chang and Lee (2009) charities are beginning to make use of statistical evidence of public welfare in order to create sympathy. In their article, Chang and Lee (2009) posed questions such as “How should the advertisers frame the message to promote donations?”, “Will influences of aforementioned information presentation about a charitable issue cause interaction effects on advertising effectiveness?” and “How should advertisers frame the statistics regarding the charitable issue?” Many charitable appeals aim to materialise a donor’s responsibility by emphasising a feeling of connectedness (Smith & Berger, 1996).

According to Maheswaran and Meyers-Levy (1990), the affect of message framing on individuals’ attitudes and behaviour towards a product or service has not received an extensive amount of attention. Little research has been done on message design in a non-profit context. Apart from message framing, message vividness is another important consideration in the design of a message and is discussed next.

3.5.2 Message vividness

According to Myers (2009), there has long been a belief that vivid messages in marketing communication are more persuasive than abstract messages. Vivid messages have the ability to engage target audiences, influence attitudes and change behaviour and beliefs.

However, limited research has been conducted that is able to confirm the vividness effect on message persuasion (Keller & Block, 1997). Research by Reyes, Thompson and Bower (1980) confirm that vividness enhances persuasion. However, Frey and Eagley (1993) claim that vividness weakens persuasion as a result of the qualities posing as a distraction. According to Taylor and Thompson (1982), precise and definite facts included in a stream of information are central characteristics to message vividness. It is expected that a message containing vivid elements will have a greater influence on an individual’s level of persuasion (Taylor & Thompson, 1982). Baesler and Burgoon (1994) define vividness as information that creates emotional interest and provokes imagery.

Frey and Eagley (1993) studied the combination of pictorial and written elements of a message and their effects on persuasion. Results indicate that persuasiveness was weaker when an image and a written message were used collaboratively as a result of the one element overruling the other. Smith and Shaffer (2000) outline a theoretical perspective concerning message vividness. The effects of message vividness are experienced when circumstances present a division in attention with competing stimuli. Vivid information is able to capture cognitive and emotional attention provided that the information presented is illustrative, emotionally engaging and relative to an individual’s senses or location (Nisbett & Ross, 1980).

According to Smith and Shaffer (2000), vivid presentations attract the attention of individuals and increase motivation in processing a message. However, it is also possible that a vivid presentation can prevent message processing by an individual (Smith & Shaffer, 2000). The results of the study by Smith and Shaffer (2000) suggest that message arguments must be tested in order to elicit favourable outcomes.

Keller and Block (1997) assert that a combination of previous literature suggests that vividness enhances a favourable outcome or that it has the reverse effect. The study by Keller and Block (1997) and Shapiro (1973) notes that the allocation of resources required to process a message has a direct effect on the persuasiveness and vividness of the message. The impact of a message is maximised when the allocation of resources required to process the message matches the level of persuasion. According to Shapiro (1973), persuasiveness is a key marketing task for non-profit organisations. Marketing communication is considered as the channel most appropriate in which to appeal to individual persuasion.

It is expected that messages that are presented vividly have an impact on individual judgements (Taylor & Thompson, 1982). The information is presented in a more realistic and memorable manner (Reihnart & Freeley, 2007). Individuals spend a greater amount of time interpreting and processing the message, thus allowing the message to become accessible and memorable with regard to decision-making (Bell & Loftus, 1985; Taylor & Thompson, 1982).

The judgment and behaviour of an individual can be influenced by the way in which information is presented or framed (Buda & Zhang, 2000). Braesler and Burgoon (1994) tested vividness in messages by means of manipulations such as emotiveness, concreteness and imagery. Emotiveness refers to the ratio of adjectives and adverbs to the nouns and verbs in a message. Concreteness refers to specific versus abstract information, and imagery refers to visually descriptive verbs. For the purpose of the current study, the design of the messages makes use of the suggested manipulations by Braesler and Burgoon (1994).

3.5.3 The importance of message design for communication by non-profit organisations

Current research concerning message presentation and design focuses primarily on health care communication, however, it is important for communication professionals to create messages of persuasion that also appeal to able-bodied individuals to donate (Hardy, 2011). Charitable donations have proved to be an important financial resource for non-profit organisations (Chang & Lee, 2009). Individual donations comprise the largest form of income for non-profit organisations. Designing a message is an important step in creating an effective communication campaign (Decrop, 2007). As a result, message design effectiveness is considered imperative to maximise a positive response from contributors (Hibbert & Horne 1996; Racionzer, 2013). Researchers concur that message framing and message vividness are important factors in advertisements that can influence consumer responses (Loroz, 2007; Qin & Brown, 2007).

Message framing is a form of communication that is used on a regular basis in the marketing industry (Chang & Lee, 2009). A considerable amount of research has been devoted to understanding the impact of message framing on the levels of persuasiveness of consumers in a for-profit environment (Yan, Dillard & Shen, 2010). However, there is still a gap in the research concerning how individuals' perceptions are affected by message framing as a guide to improve the development of messages in the non-profit sector (Kim & Kim, 2014).

3.5.4 The relevance of message design for the study

Messages in the non-profit sector were chosen as the primary topic of the research as a result of the relevance to society and the subsequent impact for the non-profit sector. The results of the research can contribute to the current practices adopted by marketing communication experts in the non-profit sector. As a result, the current research extends beyond healthcare communication, focussing on message design and presentation concerning donor communication in the form of feedback messages in the non-profit sector. The current study provides insight into specific message components (i.e. narratives, numeric values, monetary values and message source) that can be considered when creating persuasive messages and more specifically feedback communication in the non-profit sector.

For the purpose of the current study, a discussion referring to message framing and message vividness in a non-profit context is applicable. An article by Chang and Lee (2009) applies message framing in the promotion of charity-oriented advertisements. The article focuses on the modification of communication format factors such as temporal framing and image. According to Chang and Lee (2009), different manipulations of vivid information and statistical presentation can be considered as a topic for future research.

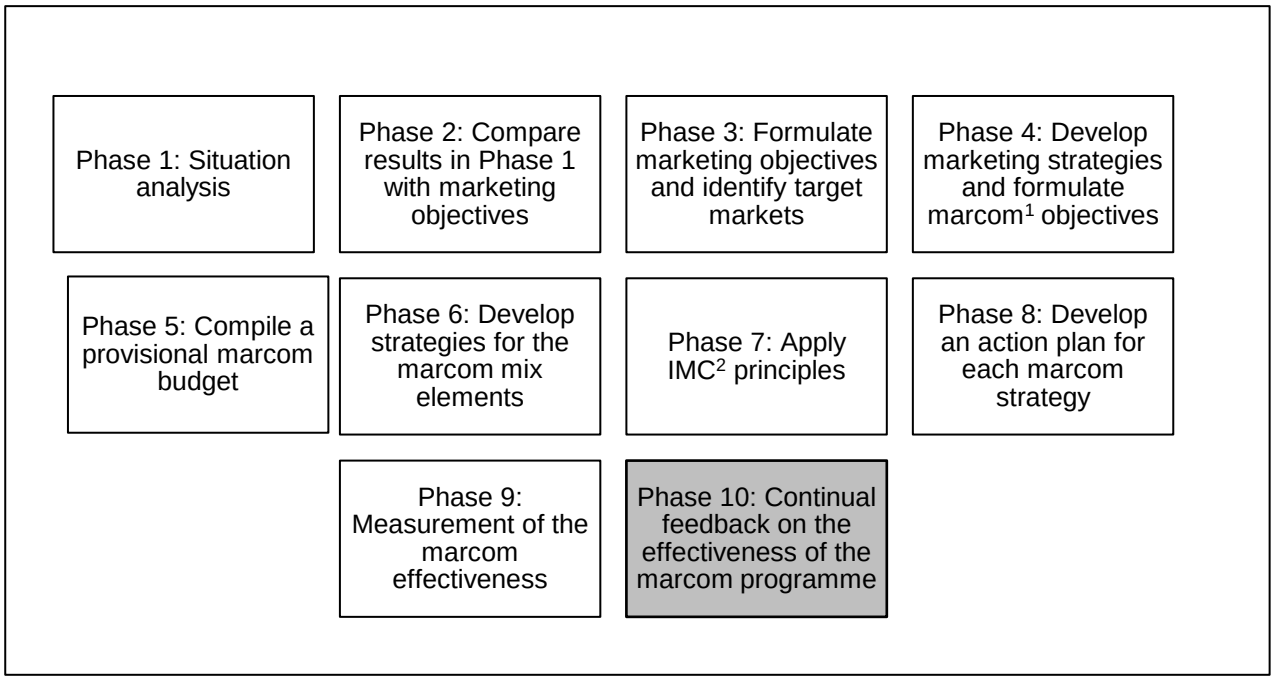
Considering that, in a non-profit context, donors do not receive tangible benefits in return for their support, it is critical that the current research recognises marketing communication as a tool that can influence and appeal to donor attitudes and behaviour. It is proposed that a review of donor responses and behaviour is important in understanding the most effective feedback messages that can positively encourage and retain donor support and involvement towards the non-profit sector. Based on previous research, it is clear that an appropriate message design can influence the effectiveness of a communication strategy.

According to Hardy (2011), areas for future research can be guided by a number of questions regarding message type. Firstly, does the length of a message affect the level of persuasiveness of the message type? Secondly, what factors can enhance or reduce the effectiveness of a message? Lastly, does the medium affect message persuasiveness? The current research responded to the second question posed by Hardy (2011). Factors of message design in terms of content elements were investigated with the intention of enhancing the effectiveness of feedback message that could influence individual responses and giving behaviour in a non-profit context.

3.6 IMPORTANCE OF FEEDBACK FOR NON-PROFIT DONOR RESPONSE

Feedback plays an important role in individual performance and behaviour (Ashford & Tsui, 1991). Feedback is an important part of any communication model in order for the sender to become aware of the receiver's response (Duncan & Moriarty, 1998). According to Schramm (1973), feedback is the "reversal of the flow, an opportunity for communicators to react quickly to signs resulting from signs they have put out". In order to develop an effective marketing communication strategy, there are ten phases that need to be consulted (Cant *et al.,* 2006). Figure 3.3 illustrates the ten phases in the marketing communication planning process. Special reference to and an explanation of phase ten is included in the discussion that follows.

Figure 3.3: The marketing communication planning process



Source: Adapted from Cant *et al.* (2006)

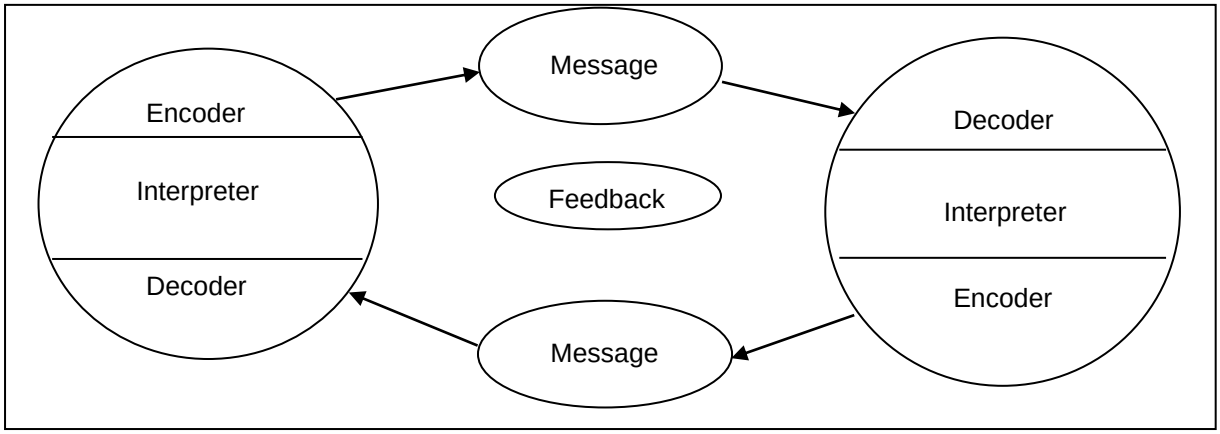
[1]Marcom refers to marketing communication; [2]IMC refers to integrated marketing communication

It is important to recognise the positioning of feedback as the final phase of the marketing communication planning process. Phase ten emphasises the importance of continuous feedback on the effectiveness and performance of the marketing communication programme (Cant *et al.,* 2006). In addition, according to Shiffman and Kanuk (2009) and Duncan and Moriarty (1998), feedback is considered as an essential component of the communication process.

Schramm (1954) derived a feedback model in consultation with the *Shannon-Weaver Transmission Model of Communication*. Schramm's model consists of six communication elements namely, the source, the encoder, the message, the channel, the decoder and the receiver, but includes two additional concepts. The first concept involves feedback that refers to the information returned to the sender from the receiver in order to inform the sender. The second concept

involves the field of experience that includes the receiver's values and beliefs. Figure 3.4 illustrates the first concept of feedback.

Figure 3.4: The feedback loop



Source: Adapted from Schramm (1954)

It is evident from Figure 3.4 that messages play an integral part in the communication feedback process. Schramm (1954) suggests that messages can yield different meanings for different people. Messages can be classified as either connotative or denotative. Denotative meanings follow a dictionary explanation whereas the connotative meanings are emotional and based on individual experience. As a result, message characteristics play an important role in the transmission and acceptance of the meaning. It is thus crucial that, when designing messages, the external factors affecting individuals are considered so that the meaning of the message is correctly interpreted and conveyed (Schramm, 1954).

3.6.1 The importance of feedback for the non-profit sector

Schiffman and Kanuk (2009) highlight an important notion by classifying marketing communication as a way in which to appeal to and persuade a specific target audience by means of an effective design that yields desirability. The test of the success of the process is the nature of the receiver's response. Consequently, feedback serves as the determinant of how well the message has been received (Shiffman & Kanuk, 2009).

Campbell *et al.* (2012) analysed feedback motivation and practices among non-profit organisations and funders, while studies by Campbell (2012) and Bonbright (2009), cited in Campbell *et al.* (2012), focused on a feedback framework providing several reasons for giving feedback. The conclusions of these studies state that feedback is meaningful in different ways to providers and funders. Providers are more focused on organisational learning and improvements whereas funders are more interested in verifying the activities and outcomes of their support (Campbell *et al.*, 2012).

Against this background, the element of feedback is proved to be an integral part of a number of marketing processes and makes a significant contribution to the effectiveness of communication activities. Non-profit organisations are advised to inform donors how their donations have been used to support their cause or beneficiaries (Bennett & Gabriel, 2000; Sargeant & Lee, 2004). Limited research has been conducted concerning feedback practices and the importance of feedback to donors in a non-profit context. It should also be noted that message design is an integral part of the feedback loop. The design of the message can provide donors with verification that their support is valuable to the organisation, consequently promoting continuous loyalty and long-term relationships.

3.6.2 The relevance of feedback for the study

For the purpose of the current study, the discussion gives attention to the design and development of effective communication messages. The design represents messages of gratitude or thank you's from a non-profit organisation as a form of feedback to donors who have supported the organisation in the past. The intention of the thank you messages is to encourage donors to repeat their engagement with the non-profit organisation that they have supported in the past. The feedback loop is part of the communication process and requires closer examination to gain an understanding of the channel used to convey a message, with reference to a 'thank you' during communication between a non-profit organisation and a donor.

3.7 SUMMARY

The design of feedback messages as an integral part of the communication process was introduced and discussed in this chapter. The purpose of the study was to design and communicate effective feedback messages to donors of non-profit organisations. In order to encourage donors to give, marketers need to influence the behaviour and attitudes of donors. A number of relevant behavioural theories were discussed such as the elaboration likelihood model, the involvement theory and the prospect theory. Source credibility, message framing and message vividness are all key elements in designing a communication message and therefore each element was defined and explained in detail. The chapter concluded with a review of the importance and relevance of feedback messages for the current study.

CHAPTER FOUR

DONOR BEHAVIOUR AND NON-PROFIT ORGANISATIONS

4.1 INTRODUCTION

The well-being of society and the environment is a growing concern across the globe. It is not without the support of dedicated organisations that appeal to individuals for donations and volunteers that these organisations are successful in their task to serve society and preserve the environment. During the 1990s, the non-profit sector discovered that using marketing techniques only did not provide sufficient insight into why individuals display philanthropic giving behaviour. The first attempts to investigate giving behaviour were studies by Guy and Patton (1989) and Burnett and Wood (1988). Since then, researchers recognised the importance to understand and to further examine the nature of donor behaviour and the motivation behind giving behaviour (Guy & Patton, 1989).

In the non-profit sector, complexities have emerged as a result of changes in the social, economic and political environment (Hibbert & Horne, 1996). Charity organisations are experiencing an increasing amount of financial pressure making it vital for improved methods of attracting and retaining private support and donations (Green & Webb, 1997). Considering the successes of the for-profit sector, thanks to the use of effective marketing techniques, non-profit organisations have followed suite to use marketing as a method to appeal to individuals for donations and support (Hibbert & Horne, 1996).

A study by Mcgrath (1997), based in the United Kingdom, addressed the concern about a decrease in the rate of donor retention. The findings showed that the percentage of donors actively donating in the UK decreased by approximately 50% over a five-year period. From these results, it has become evident that the non-profit sector is not focused on adapting to new marketing techniques to retain donors.

Mcgrath (1997) proposes a solution of retaining existing donors rather than to recruit new ones. According to Sargeant and Kaehler (1998), cited in Sargeant and Woodliffe (2007), many donors do not give again, and attempts to recruit new donors are also steadily declining (Sargeant, 1999). McGrath (1997) recognises the success in the for-profit environment where techniques are used to create value and encourage customer satisfaction with the intention of creating customer loyalty. McGrath (1997) questions whether the same approach could work in the non-profit environment, by adapting the techniques of appealing to donor loyalty and donor value.

Although fundraising was a popular marketing technique used to recruit and retain individuals during the 1990s, companies realised that fundraisers could not be the sole source of income on which non-profit organisations could rely (Hibbert & Horne, 1996). A new trend of identifying and understanding the motives behind giving amongst individuals developed with the intention of

establishing a marketing strategy that could appeal to individual motivation and consumer behaviour in a non-profit context (Hibbert & Horne, 1996). In addition, it was recognised that these strategies would contribute to a long-term commitment of donors and a resulting long-term relationship between the non-profit organisation and its donors (Guy & Patton, 1989).

Hibbert and Horne (1997) pose four questions with regard to giving, namely who gives; why do people make the decision to give; how people make decisions to donate; and how fundraisers can influence donor decisions. This chapter is structured according to these four questions. Firstly, the marketing streams of a non-profit organisation were reviewed in chapter two in order to inform the reader of the different types of individuals that give to non-profit organisations. Secondly, the consumer decision-making process is examined, illustrating why people make decisions to donate. Thirdly, the helping or support decision process explains how people decide to give. Lastly, relationship marketing focuses on developing a commitment and trust between a donor and a non-profit organisation, thus providing a channel through which fundraisers can influence donor decisions (Hibbert & Horne, 1997).

4.2 CONSUMER BEHAVIOUR IN DECISION-MAKING

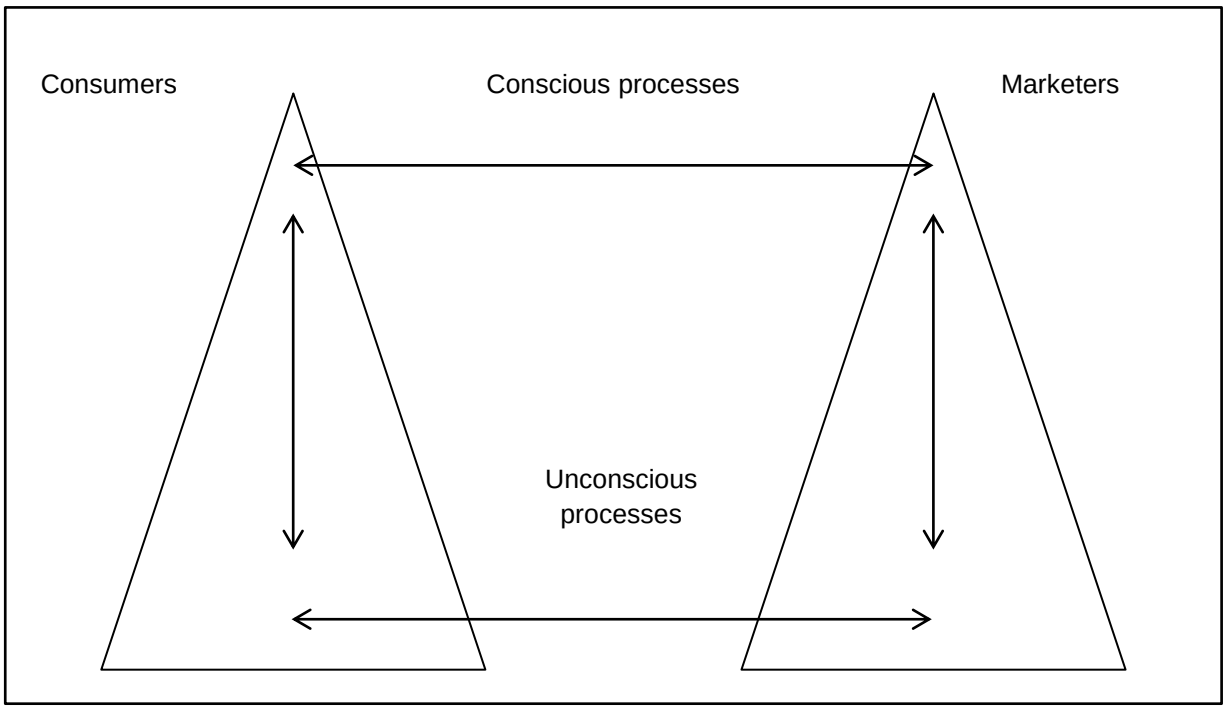
During the evolution of the marketing concept in the 1950s, marketers realised that they could sell goods and services more easily if they produced only those goods and services that they could guarantee consumers would buy. As a result, consumer wants and needs became the starting point and, in turn, the concept of consumer behaviour emerged (Schiffman & Kanuk, 2009). Qualitative research by Hibbert and Horne (1997) revealed that donor decision-making follows a similar pattern to the consumer decision-making process. Therefore, a review of consumer behaviour and the consumer decision-making process is required for the purpose of this study.

4.2.1 How consumers think

According to Zaltman (2003), marketers believe that consumer thinking is expressed in words. Therefore, to interpret and understand consumer thinking, marketers use words by means of conversation or written questionnaires. Neurophysiological analyses such as brain scans reveal that the activation of brain cells occur prior to a conscious awareness of thought and verbal language (Zaltman, 2003). Activation occurs once an individual subconsciously chooses to express his or her thoughts using words.

According to Zaltman (2003), consumer decision-making and buying behaviour are driven by subconscious thought processes and feelings. Hibbert and Horne (1997) apply the basic principles of consumer decision-making to the theory of donor decision-making. Figure 4.1 illustrates the two-way influence of consumers and marketers on both a conscious and subconscious level. Marketers have failed to penetrate the subconscious level that in fact is where the dynamics of thought processes are most active.

Figure 4.1: Two-way influence of consumers and marketers



Source: Zaltman (2003)

Advances in sociology, anthropology, cognitive neuroscience and psychology assist managers in understanding the processes shown in Figure 4.1. Figure 4.1 illustrates that marketers, too, have subconscious thoughts and expectations that influence the way in which they frame and pose their questions to consumers, the type of consumers they ask to participate in their research studies, and the different analytical tools that marketers use to shape the information given by consumers. Additionally, the consumers' subconscious processes form their responses to marketing questions (Zaltman, 2003).

4.2.2 The importance of consumer behaviour

Understanding consumer behaviour allows marketers to predict consumer behaviour given a set of circumstances that, in turn, influence the final consumption decision (Lamb *et al.,* 2008). Given the fact that product and service preferences are constantly changing, marketing also enables an organisation to address these changes, as well as to identify the variables that influence consumers' purchase decisions.

Consumer behaviour is central to the understanding of how individuals make decisions and exchanges when spending their resources such as time, money and effort during the consumption process. The nature of exchanges between individuals is crucial to the social sciences field. The concept of exchange is based on value and is a key element in marketing. The exchange process in marketing is used to understand the reasons why consumers buy goods and services in a commercial environment (Hibbert & Horne, 1997).

4.2.2.1 The importance of consumer behaviour in a non-profit context

In a non-profit context, the beneficiary is seen as the consumer, and similarly, value is exchanged between the donor and the non-profit organisation. Furthermore, donating money is deemed as behaviour with economic value that can therefore be associated with consumer behaviour where goods and services are exchanged for money. In terms of fundraising, donors are confronted with a decision of whether or not to give.

Although the consumer decision-making process refers to purchasing wanted goods or services primarily in a profit-making context, consumer behaviour is just as important in a non-profit context. Considering that the non-profit organisation is reliable on the donor decisions of the public, it is imperative that these organisations recognise the driving forces behind the intention to engage in charitable giving.

Considering that the current study focuses on the non-profit environment, the theory on consumer behaviour is applicable and adapted accordingly. In order to further analyse consumer behaviour, researchers have started to integrate brain anatomy with physiological functions. Neuromarketing is the bridge between these two emerging fields of study known as consumer behaviour and neuroscience (Morin, 2011). Neuromarketing is defined as a marketing-related or a market research-related activity that uses brain science methods and techniques (Genco *et al.,* 2013). It is believed that neuromarketing methods provide a more realistic understanding of how individual decisions are made, while at the same time promote the value of accessing the consumer's mind and behaviour by means of scientific technology (Morin, 2011).

Rapidly advancing accumulation of insights regarding consumer behaviour suggests a new paradigm that assists managers and researchers to gain more insight into consumer thought processes. Conscious and subconscious minds are active partners in consumer decision-making where the majority of the valuable information lies in the subconscious mind. Neuromarketing is a developing research field that can be used to uncover subconscious processes to explain consumer thinking in detail (Zaltman, 2003).

4.2.3 Consumer behaviour and the consumer decision-making process

Schiffman and Kanuk (2009) developed a model of the consumer decision-making process. Shown in Addendum B, the model describes how consumers make purchase decisions and how these decisions can be adapted to the donor decision-making process (Lamb *et al.,* 2008). The model merges two processes namely the consumer decision-making process and the consumer buying behaviour process. The input process describes the external influences that can influence consumers' attitudes and behaviour and, in turn, their decision-making with regard to a product or service. External influences include the company's marketing efforts as well as the socio-cultural environment.

The analysis of consumer behaviour is derived from several schools of thought on psychology (Bayton, 1958). The process component includes the consumer decision-making model and psychological factors such as motivation, perception, learning, personality and attitude (Schiffman & Kanuk, 2009; Lamb *et al*., 2008; Mihart, 2012, Bayton, 1958). The output component refers to post-decision behaviour, where the focus is on the psychological factors that play a role in influencing consumer decision-making and donor decision-making.

4.2.3.1 Individual factors affecting the consumer decision-making process

Human behaviour can be categorised into three groups namely: motivation, cognition and learning (Bayton, 1958). These three external variables affect the consumer decision-making process and ultimately the decision to buy or not to buy (Lamb *et al.,* 2008). A paper by Hibbert and Horne (1997) examines the donor decision-making process by applying the basic principles of the theory of consumer decision-making and the influencing psychological variables. Further reference can be made to block two shown in Addendum C and adapted to donor decision-making in a non-profit context.

4.2.3.1.1 Motivation and learning

Research on individual giving in a non-profit context has three main focus areas, namely the actual amount of money raised, the motivation of individuals to give to a specific cause, and how non-profit organisations can promote long-term commitment from donors (Hibbert & Horne, 1997). Motivation is a “driving force within individuals that impels them to action” (Schiffman & Kanuk, 2009). Cant *et al.* (2006) define motives as “a need or want sufficiently stimulated to move an individual to seek satisfaction”. Motivation is a state of tension developed within the individual that requires the fulfilment of a specific need (Cant *et al*. 2006)

Bayton (1958) refers to motivation as “drives, urges, wishes or desires which initiate the sequence of events known as behaviour”. Motivation, according to this author, is portrayed as a state of self-induced stress that forces the individual to behave in a certain manner in order to satisfy a need. The individual needs and wants as well as the method of satisfying these needs and wants are determined by their cognitive thinking process and learning (Schiffman & Kanuk, 2009). Against this background, it is essential that marketers consider motivation as the source that leads individuals to consumption.

Learning is referred to by Bayton (1958) as those changes in behaviour that occur in time relative to an external stimulus or condition. Learning is defined by Schiffman and Kanuk (2009) as “the process by which individuals acquire the purchase and consumption knowledge and experience that they apply to future-related behaviour”. Cant *et al.* (2006) define learning as “the result of a combination of motivation, attention, experience and repetition”. Learning and memory are

interrelated processes - learning involves acquiring new information, whereas memory involves retaining new information with the ability of recollection at a later stage (Zaltman, 2003).

Motivation is required in the learning process as motivation is based on the needs and wants of individuals that act as the first step in the learning process (Schiffman & Kanuk, 2009). For example, an individual may be motivated to become involved in charitable giving. The individual therefore needs to learn the rules and regulations of becoming a volunteer or making a donation.

4.2.3.1.2 Memory

As mentioned earlier, memory and learning are interconnected in that information is retained for future recall and new information is absorbed at a later stage (Zurawicki, 2010). Zaltman (2003) identifies an intersection between what is referred to as 'mind-body-brain', and society paradigm that identifies memory as the end product when encounters and beliefs are experienced. Memory can be recalled and is formed at a subconscious level. Marketing is a major influence on what consumers are able to recall from memory.

The memory is the domain of human experiences as memories are permanently stored in the subconscious. At any time a stimulus may trigger a responsive action from the autonomic nervous system thus activating behaviour (LaBarbera & Tucciarone, 1995). The use of certain products and services are able to bring forth memories prior to communication efforts that may reiterate and alter consumer recollections of their product or service experience. Consequently, marketers can make use of communication efforts in which to influence consumer thinking both subconsciously and consciously. Ultimately, memory affects consumer meaning and stories about a brand or product.

In order to appreciate the complexities associated with memory, psychologists have divided the concept into three categories: semantic memory, episodic memory and procedural memory. Semantic memory occurs when the meaning of words and symbols are recalled (Zaltman, 2003). Alternatively, it refers to the access of previously acquired knowledge (Zurawicki, 2010). Episodic memory involves time, place and situational events such as personal experiences (Zurawicki, 2010). Procedural memory involves learned skills. More suitable to the current study, further descriptions of memory are identified, namely implicit and explicit memory, which refers to the subconscious classification of memory. Explicit memory is voluntary and controlled, whereas implicit memory cannot be voluntarily recalled (Zaltman, 2003). As part of cognitive psychology, emotions play a key role in memory processing as it can assist with learning (Erk, Kiefer, Grothe, Wunderlich, Spitzer & Walter, 2003).

4.2.3.1.3 Perception and attitude

Cognition is classified as an area where mental processes such as perception, memory, judging and thinking take place (Bayton, 1958). Perception is defined as "the process by which an individual selects, organises and interprets stimuli into a meaningful and coherent picture of the

world" (Schiffman & Kanuk, 2008). Cant *et al*. (2006) describe perception as "the process of receiving, organising and assigning meaning to information or stimuli detected by the five senses". Individuals are selective as to which stimuli they recognise. Subconsciously, the stimuli that they do recognise are organised according to their personal psychological principles. Individuals interpret stimuli that are meaningful to them subjectively according to their personal interests and experiences (Schiffman & Kanuk, 2008).

In consumer behaviour, an attitude is "a learned predisposition to behave in a consistently favourable or unfavourable way with respect to a given object" (Schiffman & Kanuk, 2009). Cant *et al*. (2006) define attitudes as "a positive or negative feeling about an object that predisposes a person to behave in a particular way toward that object". It is thus believed that learning is an important aspect in the formation of one's attitude that, in turn, is directed by motivation (Schiffman & Kanuk, 2009).

In a non-profit context, according to Briggs, Peterson and Gregory (2009), people form positive attitudes towards a behaviour that they have strong reason to support. Green and Webb (1997) identify a number of factors that measure attitudes towards charitable giving as well as the motivation for charitable giving. These measures have been classified as important to academics as well as marketing practitioners in terms of marketing strategy development.

According to Green and Webb (1997), research suggests that there are two dimensions of attitudes towards charitable giving that pose as potential determinants of charitable giving. The first determinant can be explained as the attitude towards helping others, whereas the second determinant is the attitude towards charitable organisations (Green & Webb, 1997). In other words, the attitude towards helping others refers to behaviour that involves helping or assisting others, while the attitude towards charitable organisations makes reference to organisations that are dedicated to helping beneficiaries with the additional support from external voluntary donations from the public.

4.2.3.1.4 The role of emotions and rationality in consumer behaviour

A neurologist, Calne (1999), said "the essential difference between emotion and reason is that emotion leads to action while reason leads to conclusion". An article by Schmitt (1999) describes experiential marketing whereby consumers are viewed as both rational and emotional human beings concerned with achieving pleasurable outcomes and experiences. The human mind is constantly exposed to decision-making involving reason versus emotion, or stated otherwise, thinking versus feeling (Mehta & Panda, 2015). Emotions are fundamental to the functional processes of human behaviour and communication (Genco *et al.,* 2013). Traditionally, marketers appealed to consumers' rational thinking, however, to achieve the ultimate behavioural preferences and attitudes in consumer decision-making, an approach towards emotions is being considered

Emotions can be described as a state of a human being that is characterised by the change in the arousal of the autonomic nervous system. This current state is accompanied by distinct physiological reactions, actions and experiences of specific valence (Strongman, 1987; Pham, 2007). Human decision-making models link emotional responses to behavioural profiles. However, according to Fugate (2008), there is little understanding around emotional responses. Research by Mauss and Robinson (2009) suggests that emotions can be measured and understood by means of empirical, behavioural or physiological responses towards stimuli. Against this background, and for the purposes of the current study, the physiological responses of individuals toward pre-designed stimuli were assessed.

Pringle and Field (2008) analysed data from the IPA (UK-based Institute of Practitioners in Advertising) that compared the profitability of advertising campaigns that used an emotional appeal versus rational persuasion and information. The results showed that campaigns with emotional content performed twice as well (31%) compared to those with rational content (16%). The campaigns combining both rational and emotional content (26%) yielded a slightly lower performance result than the campaigns with emotional content only (Dooley, 2009). It was concluded that emotional content can be processed without cognitive processing and awareness (Dooley, 2009).

Neuroscientists believe that although the emotional side is much older, individuals have developed an instinctual ability to apply reason and logic as civilisation has evolved (West, 2011). Kahneman (2004) identifies two types of considerations in judgements, decisions, choices and behaviour. The first type is effortless, automatic and emotional, thus ‘coming from the heart’. The second type of consideration is slower, more conscious and deliberately monitored, thus ‘coming from the head’. The brain makes use of both the ‘head and heart’ in which to process information, however, the one side can overrule the other.

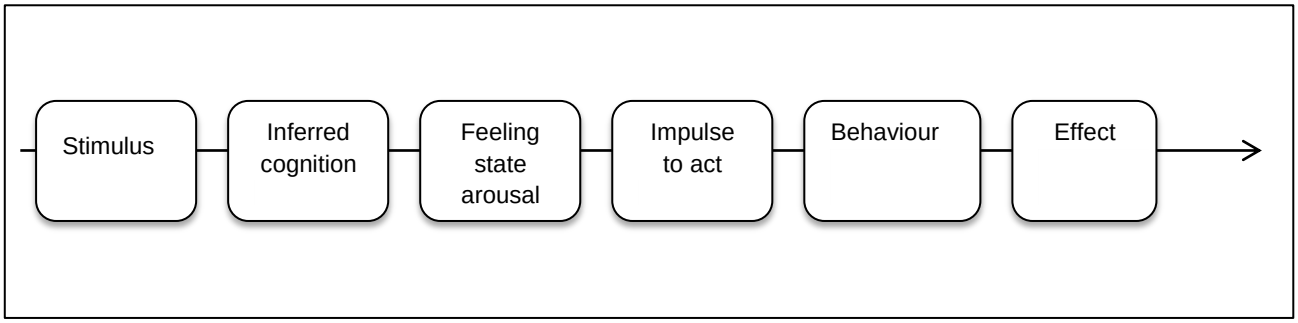
Pringle and Field (2008) explain the split in results by acknowledging the hemispheric differences in the ability of the brain to process a stimulus. The word ‘rational’ is defined as the ability to reason logically and draw conclusions from inferences (Pham, 2007). Consumers who behave rationally consider all alternatives before making a decision in order to give them the best utility. The distinction between rational motives and emotional motives is that emotional motives do not make decisions based on maximising utility or satisfaction. However, consumers will select alternatives that are best suited to their needs (Shiffman & Kanuk, 2009).

The learning process demonstrates that brand recall is not strong enough to change behaviour. It is through the process of creating emotion that the value and worth of a brand is determined (Van Praet, 2012). The emotional section of the brain dictates where an individual should focus their attention. Marketing professionals may consider focusing on infusing brand communication with emotions that are strong enough to drive behaviour, create donor loyalty and establish devotion.

Currently, marketing practice debates whether to adopt a rational or emotional approach are explored in a different light when cognitive science is involved. Evidence suggests that emotion drives behaviour, however, emotion and logic are interconnected. Rational decision-making requires emotional input to make functional and informed decisions. Marketers therefore need to appeal to emotions and feelings in order to drive behaviour (Van Praet, 2012).

According to Zaltman (2003), 95 per cent of emotions and learning occur subconsciously. The subconscious houses the field of emotions or feelings of good or bad that are assigned to objects (Van Praet, 2012). Judgements are also based on emotions rather than rational or logical thinking. Emotions are the domain of the limbic system in the brain and can be defined in many different ways. Plutchik (2001) describes the sequence of emotions, starting with the stimulus as the origin and ending with the effect as the outcome. The sequence is illustrated in Figure 4.2.

Figure 4.2: Sequencing the origin and outcomes of emotions



Source: Adapted from Plutchik (2001)

In Figure 4.2, it can be seen that human beings attempt to understand and make sense of a stimulus that leads to an emotional state. The emotional state is based on a reaction or behaviour that in turn produces a specific effect. The notion underlying the framework suggests that cognition works simultaneously with emotional reactions (Plutchik, 2001).

4.2.3.1.5 The role of gender in decision-making

According to Plant, Hyde, Keltner and Devine (2000), there has been extensive research with a gender-based focus in neuroscience. However, neuroscience research has not focused on the effect of advertising on gender responses. According to Plant *et al.* (2000), the differences in the physiological effects of gender processing are worthy of further exploration. The current research considered basic neurophysiological responses of respondents towards a set of text messages in a non-profit context. Additionally, the research analysed the responses split by gender and gender differences

Previous marketing literature with a gender-specific focus provides evidence that males tend to be selective processors that rely on heuristics, simple decision-making rules that require little processing efforts. Females, on the other hand, are known to be comprehensive processors who

focus on detailed information (Meyers-Levy & Maheswaran, 1991). Meyers-Levy (1989) studied hemispheric processing differences in the brain between genders, but further research was required to explore the left and right hemispheric processing.

Plant *et al.* (2000) provide evidence that males and females differ in their expression of specific emotions (Birnbaum, Nosanchuk & Croll, 1980; Fabes & Martin, 1991; Johnson & Schulman, 1988). For many years, there has been a belief that females are more emotional than males (Rosenkrantz, Vogel, Bee, Broverman & Broverman, 1968; Ruble, 1983). In a study by Fabes and Martin (1991), it is suggested that males and females experience emotions similarly, however, females were found to express sadness, love and fear more frequently than males.

With the assumption that males and females differ in terms of their emotional expressions, it can be deduced that physiological responses and decision-making would also differ, thereby implying fundamental gender differences. The findings of the study by Fabes and Martin (1991), concur with socialised differences in emotions known as display rules, as defined by Ekman and Friesen (1969). Display rules are known as habits concerned with emotion that should or should not be displayed by individuals. For instance, females are not supposed to show anger and males should not cry.

4.3 DONOR BEHAVIOUR

The complexities that have emerged in the non-profit sector are because of changes in the social, economic and political environment (Hibbert & Horne, 1996). Raising funds by means of donations is a challenging task for any non-profit organisation and therefore a thorough understanding of donor behaviour is required (Edison & German, 2004). Much of the research on donor behaviour focused on the understanding of donor characteristics and donor motivation (Cermak, File & Prince, 1994).

Donating is a behavioural phenomenon whereby groups or individuals appeal to and attract donations in the form of money, time or material goods (Edison & German, 2004). Mcgrath (1997) studied the decreasing rate in donor retention in the United Kingdom, and found a significant decrease from 77% to 33% of donors who actively donated again after five years. From these results it can be assumed that the non-profit sector is not adapting to new marketing techniques that focus on retaining donors. In an attempt to improve the current levels of donor retention, a review of marketing practices such as communication in creating donor value is required.

4.3.1 Creating donor value through feedback and communication

Feedback provides assurance to donors of the value of their contributions, thus encouraging future giving behaviour in support of a specific cause. Hibbert (2011) reviewed the nature of the request for support to donors from non-profit organisations. Feedback and loyalty are referred to as elements that can be considered as influential to the donor in terms of encouraging behaviour that

will be repeated. Sargeant and Lee (2004) emphasise and confirm that past donations and feedback such as messages of thank you's, recognition of a donation, information on the impact of a donation and trust lead to giving behaviour that will be repeated.

Mcgrath (1997) defines donor value as “those things that create donor satisfaction and make the donor want to give again”. To motivate donors who have given before is an important approach for non-profit organisations. These donors have already shown an interest in and a willingness to give to the non-profit organisation (Garecht, 2013).

A model developed by McGrath (1997) illustrates the elements that contribute to the concept of donor value. The model identifies a path for non-profit organisations to follow in order to create donor value and, in turn, achieve donor retention. There are two main ways a non-profit organisation can provide value. First, cause value is the main purpose of the non-profit organisation’s existence, such as helping the homeless, caring for women and children, or protecting the environment. Service value includes those activities that are performed by the non-profit organisation to the benefit of donors, such as feedback and appreciation (McGrath, 1997).

Cause value consists of one core element, namely the work that is performed. The non-profit organisation needs to address a specific social concern to support. Through their support structure the organisation must demonstrate a unique ethos, approach and appropriate values (McGrath, 1997). Service value provides more opportunities for the organisation to appeal to donors. Service value consists of five elements. Each element provides the organisation with an opportunity to improve overall satisfaction, create value and, in essence, create donor loyalty (McGrath, 1997). A brief explanation of each of the five elements is described in Table 4.1.

Table 4.1: Elements of donor value

Feedback and communication	The purpose of feedback is to demonstrate to donors that the non-profit organisation is achieving its goals. As a result, the donors will be assured that their support is valuable and that it makes a difference to the organisation. Research studies have shown that donors who do not know how their money is spent are less likely to donate to the non-profit organisation again.
Donor response	Donors who ask for more information with regard to the non-profit organisation or lodge complaints provide the organisation with an opportunity to improve satisfaction. A complaint that is well-managed may leave the donor with a higher level of satisfaction than before.
Appreciation	Another form of enhancing donor satisfaction is by demonstrating appreciation for their support.
Gift multiplier	In order to add donor value, the value of the gift or donation needs to be increased. Matched giving is the most effective way in which to increase the value of the gift or donation, Matched giving refers to the organisation matching the donor’s gift or donation

Benefits	In addition to providing value to a donor, the organisation can also follow the approach of providing the donor with a tangible benefit. This approach acts as reciprocity in a tangible form in exchange for the donor's support.

Source: Adapted from McGrath (1998)

Table 4.1 complements the focus of the previous chapter on feedback and communication, while McGrath (1998) emphasises the importance of feedback as part of the communication process in a non-profit context. It is a key strategy for non-profit organisations to reach out and appeal to existing donors in order to maintain relationships and encourage the donor to give again (Garecht, 2013). The current study attempted to identify an effective communication method that could create donor value and appeal to donors to give again by means of messages of gratitude.

4.3.2 Understanding why people help

Several research studies have recognised the motivation behind why people give (Hibbert & Horne, 1989). Non-profit organisations face the challenge of dealing with a growing demand for their services while having to compete with other organisations in the industry (Bendapudi *et al.*, 1996). As a result, it has become increasingly difficult for them to appeal to supporters for help. A model developed by Guy and Patton (1989) on the decision-making process focuses on *how* people donate rather than *why* they donate. The model is shown in Figure 4.3, followed by a discussion.

Helping behaviour can take on different forms for both an individual and an organisation. An organisation or individual can directly support another individual or group in need by making a donation or, for instance, fostering a child. Alternatively, support can be provided by means of an intermediary organisation through a corporate philanthropy campaign or a cause-related marketing approach (Bendapudi *et al.,* 1996; Varada Menon, 1988).

Organisations in the non-profit sector have been established for the purpose of helping society and performing philanthropic giving in order to yield positive outcomes for the environment (Guy & Patton, 1989). Effective techniques need to be implemented for the non-profit organisations to obtain resources such as time and money. The success of a non-profit organisation to support others depends on how successful it is in its appeal to the public for contributions and support (Guy & Patton, 1989).

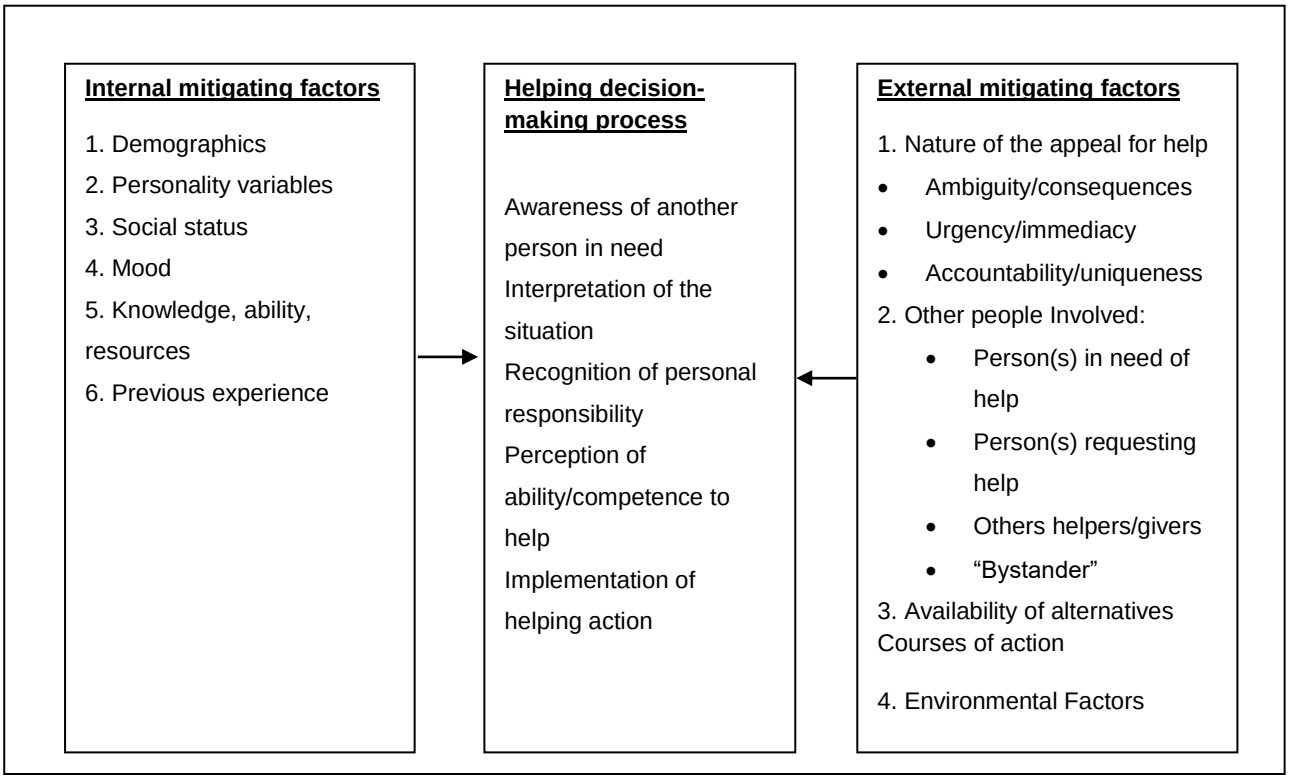
However, appealing for donations and support has always been a challenge for the non-profit sector (Guy & Patton, 1989). As outlined in Chapter two, research by Statistics South Africa (2013) illustrates the limited size and scope of government funding and local donations to the non-profit sector, emphasising the importance of donors. In the light of these circumstances, it is critical that

researchers continue to investigate the motivation behind charitable giving to enable non-profit organisations to create and communicate an effective appeal to donors.

4.3.2.1 The helping decision-making process

According to Lamb *et al.* (2008), a wealth of research focuses on the buying-decision process in that consumers experience a number of stages before making a decision to purchase a product. Considering the nature of the current study, the model developed by Guy and Patton (1989) is relevant. The model explains what is called the 'helping decision-making process'. Research reveals that an individual's motivation to help only occurs once the individual has experienced a decision-making process that leads to behaviour. In order to appeal to donors, it is important for marketing managers of non-profit organisations to understand the stages of a decision-making process that take place before a donation is made. The helping decision-making process is illustrated in Figure 4.3 below.

Figure 4.3: Helping decision-making process and potential mitigating factors



Source: Guy and Patton (1989: 22)

As shown in Figure 4.3, there are two types of contributing factors that affect the helping decision-making process, namely internal mitigating factors and external mitigating factors. The internal mitigating factors include demographics, personality variables, social status, mood, knowledge, ability and resources and previous experience. The external mitigating factors include: the nature of the appeal to help, other people involved, the availability of alternative actions and environmental factors (Guy & Patton, 1989: 22).

The helping decision-making process is prompted by an individual's awareness of another person in need, followed by an interpretation of that need. The recognition and perception of competence to help follows before the actual helping action is implemented (Guy & Patton, 1989: 22-23). The discussion factors in the helping decision-making process is pertinent to the study, while the model assists in the understanding of the thought process of donors along with the intrinsic and extrinsic factors that influence donor decisions.

4.3.3 Implications of understanding donor behaviour for non-profit organisations

A number of studies have recognised the need to further understand and identify donor behaviour (Guy & Patton, 1989; Bendapudi *et al.,* 1996; Varadarajan & Menon, 1988). Donor behaviour is an important consideration for non-profit organisations when appealing to the psychological network that drives donor decision-making. Understanding the process of donor decision-making enables marketing managers to adapt their communication strategies with careful consideration of the extrinsic and internal factors. The research studies discussed earlier resemble evidence that donor characteristics affect the level of donations towards non-profit organisations.

As discussed earlier in this chapter, the literature by Guy and Patton (1989) and Hibbert and Horne (1989; 1997) suggests that donors experience a decision-making process, known as the helping decision-making process, before demonstrating philanthropic giving. Furthermore, it was pointed out that understanding the motives behind charitable giving assists marketers in tailoring their marketing techniques when appealing and influencing individuals' donation intentions. However, in order to retain individual support and to create long-term relationships, an understanding and examination of the behaviour of donors are essential.

4.3.4 The importance of understanding donor behaviour for the study

The current study identified an effective communication method by means of feedback messages in which to appeal to donors. More specifically, the study focused on messages of thank you's expressed to donors who already made a donation to a non-profit organisation. The message can be considered as a form of feedback with the purpose of encouraging donors to make another donation or to give again. It is imperative that the process of how donors make decisions with regard to helping or giving is reviewed. Marketing experts can change these donor decision-making processes.

4.3.5 The development of relationship marketing

The primary goal of a marketing communication approach can be classified as the ability to affect behaviour by means of direct communication. The integration of communication messages is instrumental for the success of relationship marketing (Grönroos, 2005). Successful marketing communication, in turn, is required to build relationships between brands and consumers (Cant *et*

al., 2006; Kitchen, Brignell, Li & Jones, 2004). Similarly, in a non-profit context, a relationship between the organisation and the individual supporter is also required (Kitchen *et al.,* 2004).

Considering that the marketing concept stems from economic theories, the initial focus was on transactions and exchanges (Sheth & Parvatiyar, 1995). However, both from a theoretical and managerial perspective, the marketing concept became a popular practice from a managerial perspective and among marketing scholars, the marketing concept developed from a transaction-based to a relationship-based orientation (Sheth & Parvatiyar, 1995).

The earliest definition of the concept of relationship marketing was introduced by Berry (1983) as "attracting, maintaining and – in multiservice organisations – enhancing customer relationships". In Sargeant's (2001) interpretation of relationship marketing, the emphasis falls on customer retention and development.

As mentioned earlier, individuals are the biggest contributors to the non-profit sector (Hibbert & Horne 1996; Racionzer, 2013). In the profit-making business sector, Harley (1984), Petersen (1997) and Lawrence (2012) revealed that it is five times as costly to attract new customers than it is to retain business with existing customers. The same approach applies in a non-profit context. As a result, it is important that managers consider the development of relationships by following a relationship marketing approach in order to appeal to and maximise a positive response among individual contributors (Hibbert & Horne, 1996).

According to Morgan and Hunt (1994), relationship marketing can be defined as "all marketing activities directed toward establishing, developing and maintaining successful relational exchanges". Relationship marketing places emphasis on maintaining long-term relationships with existing customers with the intention of supportive resource allocation in addition to attracting new customers (Sargeant, 2001).

A model presented by Morgan and Hunt (1994), theorises that there are many contextual factors contributing to both the successes and failures in the development of relationships in a marketing environment. Macmillan, Money, Money and Downing (2005), confirm that commitment and trust are the building blocks of successful relationships with customers. When commitment and trust are established, efficiency, productivity and effectiveness are enhanced, leading to intentional behaviour (Morgan & Hunt, 1994).

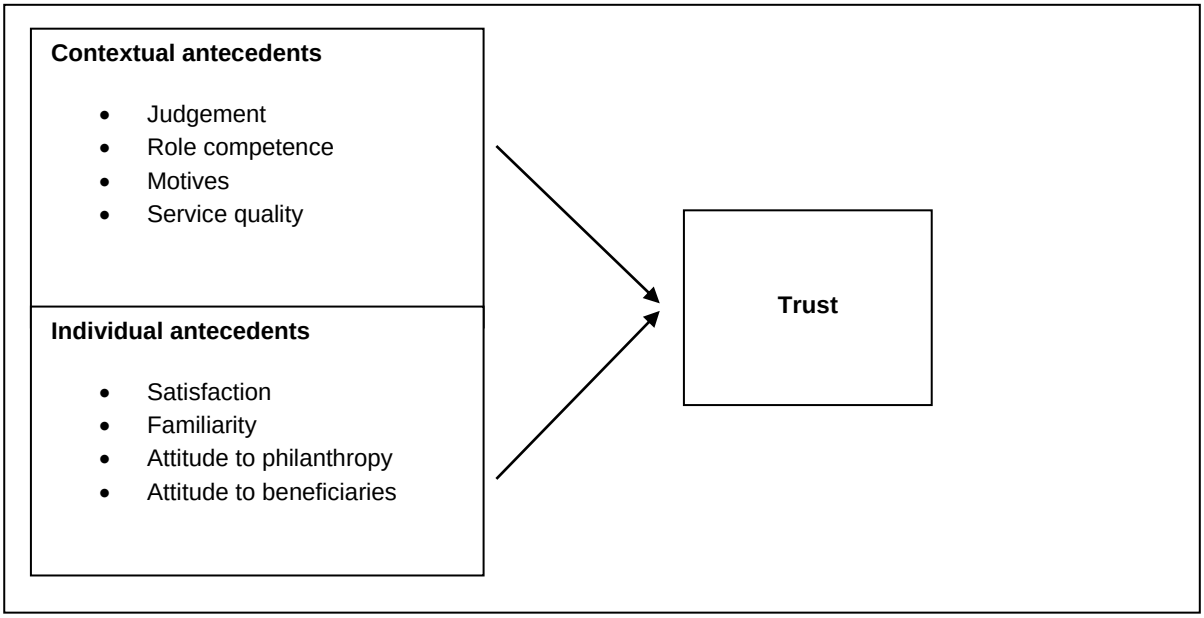
A number of studies by Guy and Patton (1989), Sargeant (1999b); Webb *et al.* (2000) and Bendapudi *et al.* (1996), focused on synthesising the array of literature related to giving behaviour or the helping process in an attempt to develop foundational models. Despite the focus being on individual giving, there are still several opportunities for further research. According to Sargeant and Bennett (2005), there is also a need to further understand variables that might influence the levels of giving.

Factors that may have an effect on individual behaviour include trust and communication - focus areas that, however, have been significantly under-researched. Further research into factors that influence donor retention is also required (Sargeant & Bennett, 2005). In order to fill the gap in the research, a purpose of the current study was to identify effective communication techniques by means of feedback messages that could encourage donor retention, through mutual trust and commitment from existing and potential donors.

4.3.5.1 Trust and commitment as antecedents to relationship marketing

Trust is considered as the foundation on which non-profit organisations are built (Sargeant & Lee, 2002). It is also an antecedent to forming long-term relationships and simultaneously developing donor loyalty (Macmillan *et al*., 2005; Morgan & Hunt, 1994). Without the element of trust between individuals and a non-profit organisation, individuals are less likely to offer their resources. Sargeant and Lee (2002) propose a conceptual model by grouping the antecedents of trust in the non-profit sector into two main categories namely; contextual antecedents and individual antecedents. The model of trust and the different antecedents of trust are depicted in Figure 4.4.

Figure 4.4: Conceptual model of trust



Source: Adapted from Sargeant and Lee (2002)

Contextual factors refer to an individual's perceptions of the non-profit sector and organisational factors that contribute to the creation of trust. Individual factors refer to the intentions of supporting another individual or group. Results from the study by Sargeant and Lee (2002), suggest that attitudes towards philanthropy, perceived judgement of the organisation, role competence and service quality are the functional elements in the creation of trust in the non-profit sector.

It is important to review the model of trust as an antecedent of building relationships. Trust represents a donor's feelings of familiarity and understanding of the nature of an organisation

(Saxton, 1995). The mission of non-profit organisations is to create and maintain a favourable public perception through promoting the value of their work, thus providing individuals with a rationale for their support. Sargeant and Lee (2002) imply that non-profit organisations could increase their level of trust by communicating to donors. In addition, by communicating, non-profit organisations can inform individuals of the outcomes as a result of their donation, as well as the process through which the outcomes were achieved.

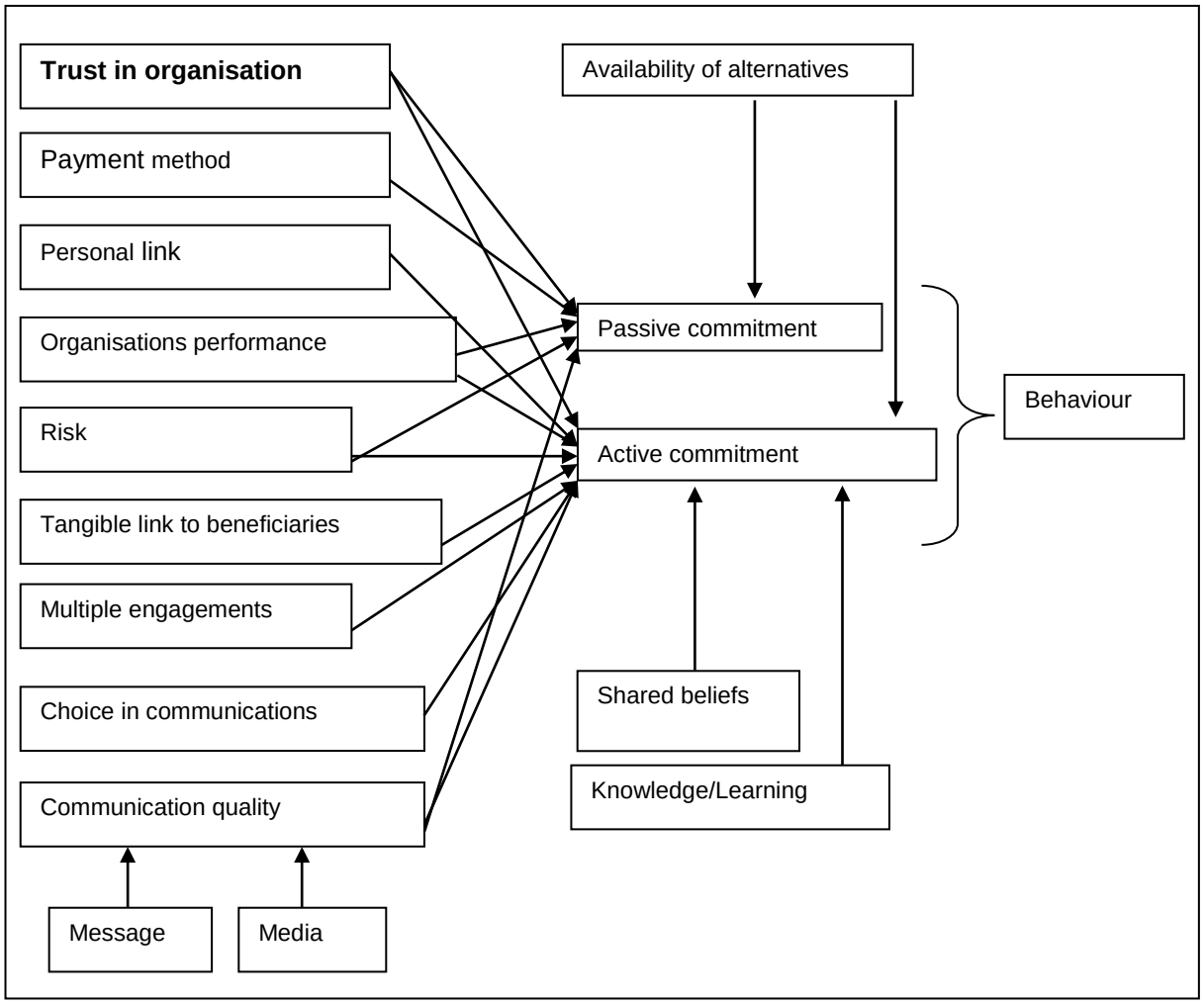
A literature review by Sargeant and Lee (2002) also highlights the importance of communication between donors and non-profit organisations. In order to develop trust, each party must be committed to a relationship (Foreman, 2005). It is further emphasised by Sargeant and Lee (2002) that the outcomes of communicating to donors create an element of trust, whilst providing a foundation for a long-term relationship and donor loyalty.

In their study on donor loyalty, Sargeant and Woodcliffe (2007), emphasise the importance of building donor loyalty through the concept of commitment. Morgan and Hunt (1994) in turn, classify commitment as a building block in forming a relationship with the intention of yielding positive and valuable outcomes. An in-depth discussion of literature associated with commitment in a for-profit, business-to-consumer environment has been reviewed whilst Sargeant and Woodliffe (2007) recognised the gap in the research with regards to donor commitment.

Sargeant and Woodliffe (2007) explored the concept of donor commitment to determine the antecedents that may positively strengthen the nature of attitudes and encourage donor behaviour in a non-profit context. The primary intention of their paper was to define the role of pertinent factors that create donor commitment and subsequently donor loyalty. Extensive marketing research defines commitment as a "relationship-enhancing state that is significant to achieving valuable outcomes" (Morgan & Hunt, 1994: 23). Trust and loyalty are also considered instrumental in understanding commitment as a construct (Sargeant & Woodliffe, 2007).

Figure 4.5 illustrates the important antecedents of donor commitment. The consideration of the theoretical background of donor commitment can help the non-profit sector in identifying the factors that help develop commitment and, in turn, contribute to a long-term relationship. Sargeant and Woodliffe (2005) emphasise that, in a non-profit context, if donors are committed, future behaviour and attitudes emerge as a consequence.

Figure 4.5: Antecedents of donor commitment



Source: Adapted from Sargeant and Woodliffe (2005)

An in-depth review of the antecedents of commitment is fundamental for understanding behaviour. Trust and commitment are considered as fundamental building blocks of forming relationships (Macmillan *et al*., 2005). Figure 4.5 complements the current study that focused on communication elements that could influence donor behaviour with the intention of forming long-term relationships. Therefore, an understanding is required of the antecedents of developing commitment and future donor behaviour. However, the central focus of trust in the organisation, the choice of communication and the quality of communication are the core antecedents relevant to the current study.

As alluded to earlier, trust is considered to play a critical role in the development of commitment. Sargeant and Lee (2004) addressed the link between trust and relationship commitment in a non-profit context. Morgan and Hunt (1994) confirm that trust has an impact on relationship commitment, and consequently, behaviour is affected. Donors who are offered a choice in communication express a higher degree of commitment regardless of whether the choice is made or not (Sargeant & Woodliffe, 2005: 72).

The acceptance of communication by an individual is suggested to be an antecedent of commitment (Anderson & Narus, 1990; Sargeant & Woodliffe, 2005). The focus group in the study by Sargeant and Woodliffe (2005) found that donors deemed the nature of the communication messages as well as the media used as important. Donors expressing a higher level of commitment are also those who express a higher level of satisfaction with the quality of service provided (Sargeant & Woodliffe, 2005: 71). Anderson and Narus (1990) refer to additional marketing literature that also indicates that the extent to which a donor accepts communication from non-profit organisations is indicative of the level of trust.

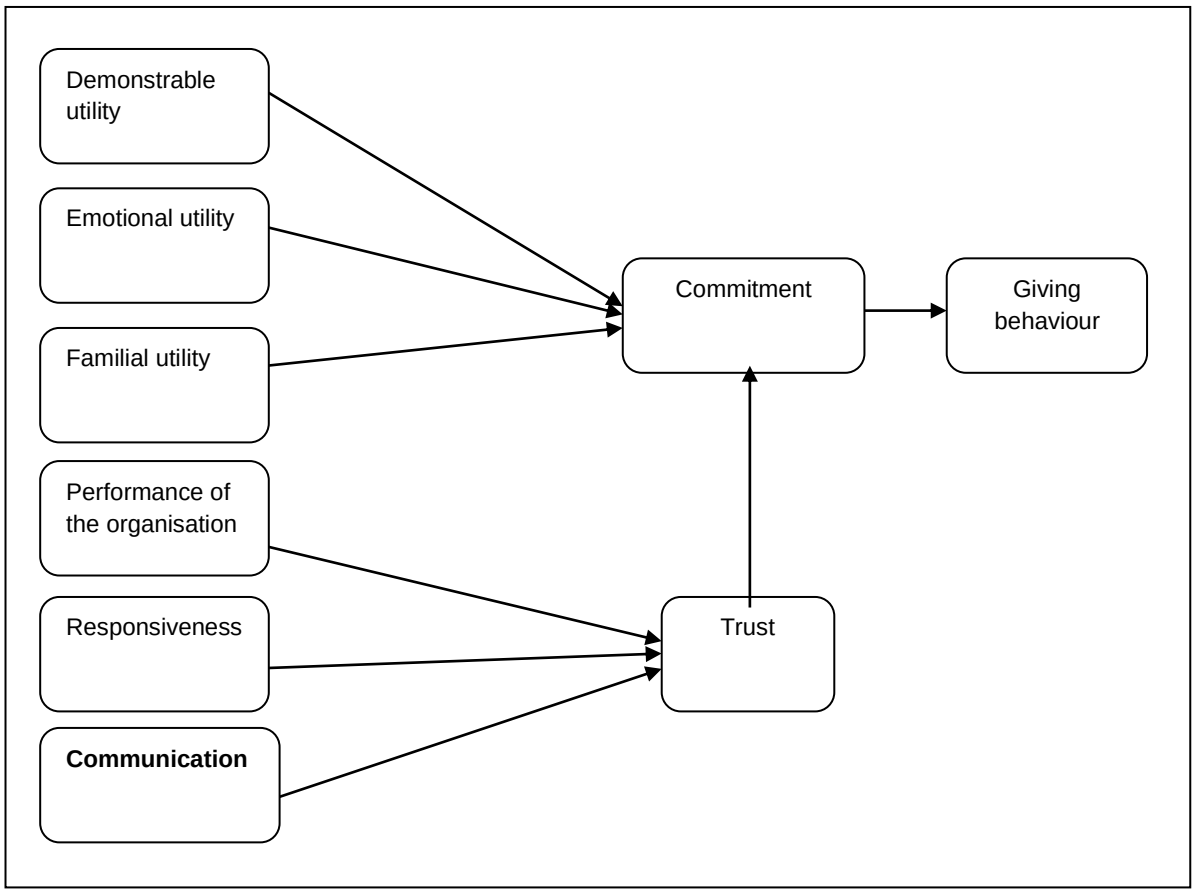
Donor commitment is best defined as a multidimensional construct. Passive commitment is driven by antecedents such as trust, risk, performance and the quality of communication received. Active commitment develops when donors feel that they have shared their beliefs, had a choice in communication, engaged with the non-profit organisation and developed a personal link (Sargeant & Woodliffe, 2005: 74).

4.3.5.2 The commitment-trust theory

Commitment is conceptualised by Morgan and Hunt (1994) as the intention of individuals to remain in a relationship in addition to the efforts dedicated towards maintaining the relationship. The theory behind the model of relationship marketing by Morgan and Hunt (1994) hypothesises that commitment and trust are central to a relational exchange with the five antecedents of an exchange (i.e. relationship termination costs, relationship benefits, shared values, communication and opportunistic behaviour) and the five outcomes leading to trust and commitment (i.e. acquiescence, propensity to leave, cooperation, functional conflict and decision-making uncertainty). Morgan and Hunt's (1994) results indicate that commitment is dependent on relationship benefits, trust, relationship terminations costs and shared values. It is important for marketers to understand the model of relationship marketing as it reflects the foundation of the development of long-term relationships in a marketing context, with specific reference to individual contributors in the non-profit sector.

Sargeant, Ford and West (2006) conducted research based on a list of factors that were quantitatively tested to measure their impact on an individual's giving behaviour. These constructs included: the perception of the benefits that result from the support of donors, and secondly, the perceptions of the behaviour of specific organisations in response to support. In addition, trust and commitment were the variables selected to assess the impact on an individual's giving behaviour. Figure 4.6 illustrates the research by Sargeant *et al*. (2006).

Figure 4.6: Theoretical model on giving behaviour



Source: Adapted from Sargeant *et al.* (2006)

Sargeant *et al*. (2006) suggest that the level of trust of an individual in a non-profit organisation is highly affected by the organisation's ability to communicate rather than how responsive the organisation is to donations. In other words, trust is developed when a non-profit organisation has a visible impact on the cause that it supports by communicating the benefits to donors rather than responding quickly to various concerns (Sargeant *et al.*, 2006). A review of the communication aspect of the model emphasises the effect of communication on the development of trust and commitment that subsequently drives donor behaviour. Marketers are not only required to understand and research an individual's driving force, but also to appeal to individuals by using basic marketing approaches such as the development of a relationship (Lamb *et al*., 2008).

The models by Sargeant and Woodliffe (2005), Sargeant and Lee (2002) and Sargeant *et al.* (2006) are relevant for review in a non-profit context as all frameworks have an impact on the nature of giving. These models provide a holistic view of the antecedents involved in influencing donor behaviour through trust and commitment. Additionally, the models by Sargeant and Woodliffe (2005) and Sargeant *et al.* (2006) emphasise communication as a further antecedent that encourages trust and committed behaviour. It is thus evident that communication is a core element of the current research.

4.3.5.3 The impact of donor relationships on non-profit organisations

Sargeant (2001) studied the transition from transaction-based fundraising to relationship-based fundraising. The fundraising strategy for transaction-based goals is driven by the returns of the campaign. However, a relationship-based goal recognises that it is not a priority to focus on the return, but rather on communication with the donor as the primary goal of the campaign. Sargeant (2001) suggests that treating donors with respect will encourage giving behaviour that will be repeated.

For many non-profit organisations it is a challenging task to recruit and retain supporters, however, over the years, marketing has made a significant contribution in this respect (Yavas & Riecken, 1997). The difficulty that non-profit organisations face is not only a shortage of funds, but more importantly, to identify potential donors and to find the most effective methods in which to appeal to and communicate with these donors (Edison & German, 2004).

In addition, acquiring committed donors is also a priority as it gives a strategic advantage over competing organisations in the industry (Edison & German, 2004). Research pertaining to this area points out the importance of understanding the 'volunteer market' through consumer behaviour and the decision making process; the types of messages that are most effective to communicate to existing and potential supporters; and factors that encourage donor retention (Omoto & Snyder, 1995; Bennett & Kottasz, 2000; Wymer, 1997).

Both for-profit and non-profit organisations seek to serve the needs of multiple stakeholders, create a demand for their product in order to generate funds and create a positive image (Espy, 1993). Many of the functional tasks of non-profit organisations show similarities to those found in for-profit organisations, including marketing. The strategic initiatives of non-profit organisations rely on identifying individuals to pursue as donors, the offerings to these individuals, and how to implement transactions and build relationships with donors.

The importance of the relationship marketing concept is included as a fundamental theoretical approach. It is also a marketing technique that is valuable for non-profit organisations as it appeals directly to individuals. It is thus crucial for non-profit organisations to consider the building blocks of developing a long-term relationship to maintain continuous support through trust and commitment.

4.3.5.4 The importance of donor relationships for the study

Messages of feedback are designed with an inherent goal of establishing a relationship and developing a level of commitment from respondents with regard to long-term support. The development of long-term relationships can generate a positive contribution to the stability of the non-profit organisation by encouraging donors to give again. It is important that managers

implement an end-goal relationship marketing approach in order to sustain and maximise a positive response among individuals (Hibbert & Horne, 1996).

The purpose of the current research was to identify a marketing communication method that could influence an individual's psychophysiological responses towards feedback messages by using neuromarketing techniques. Understanding the subconscious consumer behaviour towards marketing communication in the non-profit sector can assist non-profit managers in designing effective communication messages. Messages that appeal to individuals on a subconscious level promote decision-making that drives behaviour, in this case, giving donations.

4.4 A NEUROMARKETING APPROACH IN UNDERSTANDING CONSUMER BEHAVIOUR

Neuroscience is the study of the human nervous system, which includes the brain, the anatomy and the peripheral nervous system. Neuroscience is the collective term for understanding the brain's physiological reactions and responses when exposed to certain stimuli (Genco *et al.,* 2013). Neuromarketing is based on three fields of science, namely: neuroscience, behavioural economics and social psychology. Behavioural economics involves the study of how individuals make economic decisions, while social psychology refers to individual thinking as well as actions and behaviour in a social context.

Neuromarketing is a young discipline that acts as a branch of neuroscience and provides an in-depth understanding of the consumer thought process through subconscious processes (Bercea, 2011; Garcia & Saad, 2008). The practical scope of neuromarketing allows researchers to test the effect of a stimulus on a consumer's brain and furthermore identify how individuals process different stimuli and make a decision (Reimann *et al.*, 2011).

Fugate (2007) compiled a behavioural model to predict which marketing stimuli accomplish certain behaviours. For future research and implementation, the model was adapted, namely from using basic neuromarketing principles to applied neuromarketing research. Researchers can adopt neuroscientific tools in order to confirm behaviour and restructure existing consumer behaviour theories. Considering the need for further research in the neuromarketing field, the current study makes use of neuromarketing as the primary methodology in understanding donor behaviour by means of physiological responses.

Neuromarketing research has the advantage of gaining objective data by using advanced technology in neuroscience (Bercea, 2011). Consumers are driven by emotions, motivation and behaviour that consume a large part of the subconscious segment of the brain (Ohme *et al.,* 2010). In order for marketing professionals to understand the automatic, yet subconscious, emotions experienced by consumers when exposed to advertising messages, neuromarketing is a relatively new discipline that is able to examine the brain and the reasoning behind certain consumer choices (Kenning, Plassmann & Ahlert, 2007; Plassmann, Ambler, Braeutigam & Kenning, 2007).

Neuromarketing measures can identify and explain consumer preferences, motivation, expectations and behaviour. The following section reviews the anatomy of the brain to provide a basic understanding and reasoning as to why individuals respond to the same stimuli in a different manner.

Zurawicki (2010) refers to the nervous system as the core of all mental activity such as thought, memory and learning. The two major components of the nervous system are the central nervous system, consisting of the brain and spinal cord, and the peripheral nervous system, consisting of nerves. A summary of the nervous system is provided for the reader to gain an understanding of the functionality of the brain that is significant in neuromarketing research.

4.4.1 The peripheral nervous system

The peripheral nervous system (PNS) is embedded in nerves responsible for feeding information to the brain and distributing the information from the brain. The autonomous nervous system (ANS) forms part of the PNS. The core functionalities of the PNS involve heart rate, digestion, respiration, salivation and perspiration. These functions occur without conscious control (Zurawicki, 2010).

4.4.2 The central nervous system

The central nervous system (CNS) is more applicable to studies involving consumer behaviour. The CNS is made up of two major components known as the brain and the spinal cord. The brain is known as the command centre where all stimuli are interconnected and collaborated. Alternatively, the spinal cord is an extension of the brain and is responsible for transmitting inputs between the periphery and the brain (Zurawicki, 2010).

4.4.3 The anatomy of the brain

The brain is known as the command centre of communication where sensory and motor information is received and processed (Zurawicki, 2010). According to Morin (2011), neurons are the cells that form the basis of an individual's cognitive responses. The brain consists of billions of neurons and synaptic connections. Together, the neural circuitry is formed. The cerebral cortex has approximately 30 billion neurons that are the building blocks for thought (Zaltman, 2003). When exposed to a stimulus, the neurons emit amplifiable electrical currents that form multiple frequencies, also known as brainwaves. These brainwaves are emitted at different stages and states of arousal (Morin, 2011).

A neuroscientist of the 1960s, Paul Maclean, proposed the three-brain theory, asserting that each brain has its own distinct set of capabilities. These brains are interconnected by nerves and cooperated simultaneously, forming the foundation of consciousness that allows individuals to experience the world through physical, emotional and rational minds (Van Praet, 2012). Renvoise

and Morin (2005) also posit that there are three brains: the thinking brain, the rational brain and the logical brain. For the purposes of the current study, Maclean's three-brain theory is discussed.

4.4.3.1 The reptilian or physical brain

The old or physical brain, or the reptilian brain, performs basic functions such as heartbeats and breathing (Renvoise & Morin, 2005). It is situated deep at the base of the skull. The physical brain makes use of sensory inputs and monitors physical responses and mobilisation during the so-called 'fight or flight' mode (Van Praet, 2012). The physical brain is the domain to the natural instincts and automatic behaviour such as breathing, digestion, sleeping, walking and eating. These behaviours are resistant to change, as they are essential for survival. Ultimately, the physical brain is designed for taking action. The physical brain lacks the ability to think rationally or intellectually and therefore is incapable of learning. It is typical for the physical brain to repeat primary behaviours that are performed in a ritualistic and rigid manner (Van Praet, 2012).

4.4.3.2 The limbic system or emotional brain

The emotional brain, or limbic system, mediates and controls feelings that are subconsciously represented. The part of the brain that is most applicable to consumer behaviour experts is the limbic system (Renvoise & Morin, 2005). According to MacLean's three-brain theory, the emotional brain forms bonds and relationships with people and controls emotions and memories. The *amygdala* lies in the centre of the limbic system and acts as the channel to emotions. The limbic system is home to many involuntary functions that lie below consciousness. Consequently, the limbic brain channels the physical brain into action (Van Praet, 2012). The words 'emotion' and 'motivation' originate from a Latin word meaning 'to move'. The notion suggests that with every emotion and motivation, exists the need to take action.

4.4.3.3 The neocortex or rational brain

The thinking brain, or neo-cortex, is the rational and logical side of the brain, which functions consciously (Morin & Renvoise, 2005). The rational brain is the outermost layer and is the domain of conscious awareness. The rational brain drives higher cognitive functions such as language, speech, writing, mathematics and problem-solving. The neocortex is divided into two hemispheres. The right hemisphere is home to spatial, artistic and abstract ideas, whereas the left side is linear, rational and verbally oriented. The rational brain converts emotional feelings into meaning (Van Praet, 2012).

In essence, the emotional brain overrules the rational brain thus an individual's feelings are the primary drivers of behaviour (Van Praet, 2012). Consciousness is the level of awareness that influences an individual's ability to make choices and, in turn, allows marketers to understand consumer behaviour (Zaltman, 2003). Unconscious perception allows multiple sets of sensory information to be perceived simultaneously by different senses. Conscious perception uses only a

single channel at a time (Zurawicki, 2010). Traditional marketing research methods have the ability to access a consumer's conscious level that provides valuable information. However, new and improved neuroscientific methods make it possible that information can be extracted at an unconscious level through psychophysiological methods. Once exposed to a stimulus, the 'three brains' combine, whereby the emotional and thinking brain deliver the information processed to the reptilian brain, which makes the final (purchase) decision. The process is represented by the subconscious mind (Renvoise & Morin, 2005; Mehta & Panda, 2015).

Neuroscience has the ability to illustrate how emotional, rational thinking and decision-making co-exist by learning how the two sides of the brain, namely the thinking and the feeling sides, cross paths. According to neuroscience, humans use both the emotional and rational side of their brain when making decisions. Neuromarketing has the capability of identifying which side of the brain is used based on exposure to a stimulus, thus understanding the perception of an individual towards, for instance, a certain brand (Lee *et al*., 2007). The influence of emotions versus rationality on consumer responses is pertinent to the purpose of the current research. The current research tested the neurophysiological responses to text messages that included both emotional and rational content in a non-profit context. The physiological responses that occur prior to the demonstration of emotions in a marketing research context are reviewed next.

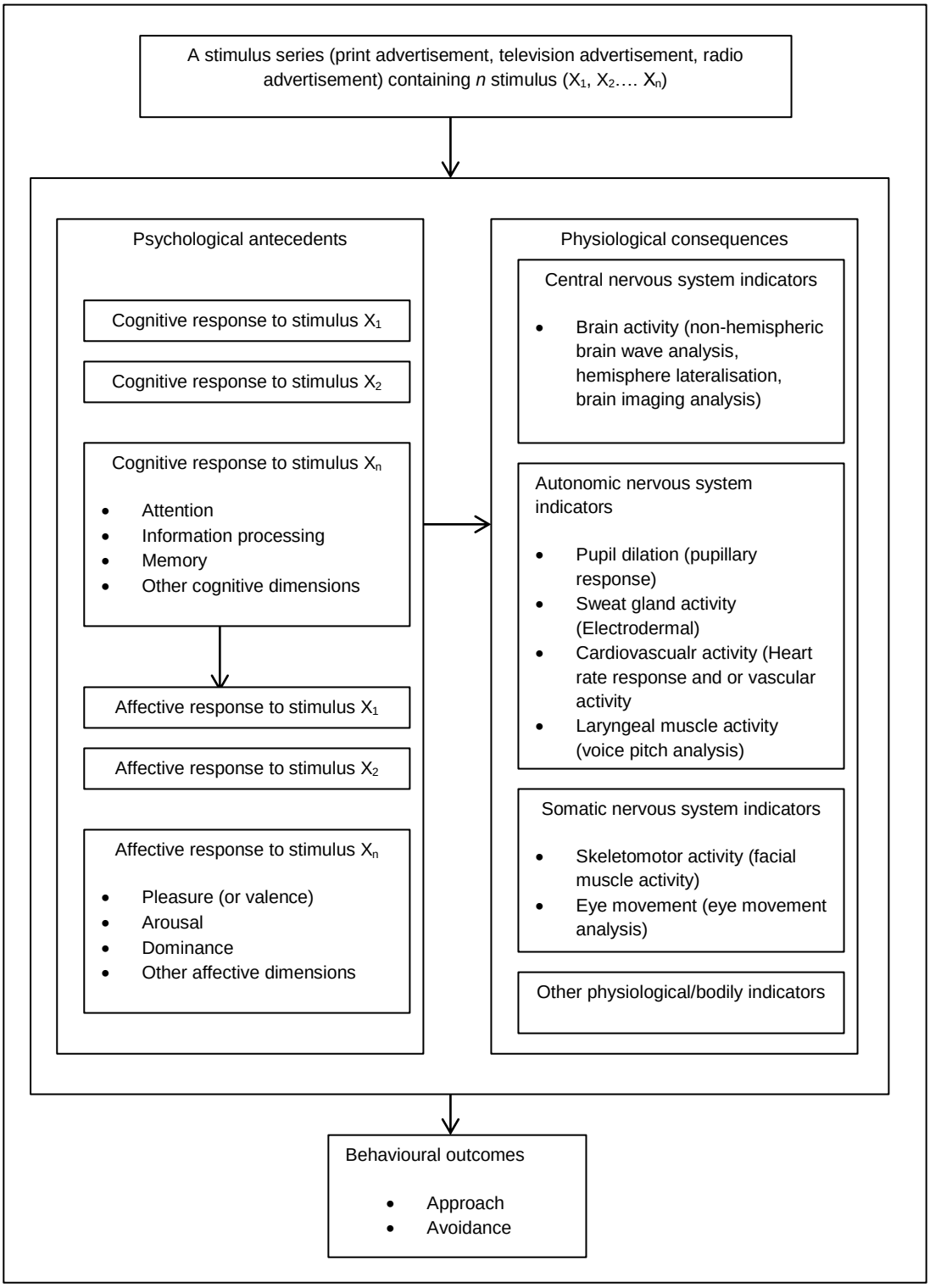
4.4.4 Understanding psychophysiology in marketing research

Apart from understanding the consumer behaviour associated with specific neuromarketing measures, it is also important to explain the psychophysiological framework in Figure 4.7 in marketing research. This framework identifies the process of analysing the physiological consequences as a result of the psychological antecedents. The framework has been adapted from Wang and Minor (2008) who compiled a stimulus-organism-response model (S-O-R) from literature by Eroglu, Machleit and Davis (2001), who, in turn, examined the impact of an external stimulus on a consumer's response. According to the framework, a number of environmental stimuli can influence a consumer's psychophysiological processes, thus affecting the behavioural outcomes. The psychophysiological framework reflects the linkages between the body and the mind following exposure to an external stimulus (Zaltman, 2003).

Psychophysiological techniques are used in marketing research experiments with the intention of examining a consumer's cognitive and affective processes in response to manipulated marketing stimuli. The cognitive and affective psychophysiological processes in unity serve as the psychological antecedents as a result of a number of physiological consequences occurring from the human nervous system. Physiological consequences can be described as central nervous system (CNS) indicators, autonomic nervous system (ANS) indicators or somatic nervous system (SNS) indicators. The ANS, which regulates organ functions, indicates involuntary control whereas the SNS, which regulates muscle functions, indicates voluntary control (Wang & Minor, 2008).

Measuring physiological changes allows researchers to identify individual cognitive and affective psychophysiological responses. It is important to note that a specific psychological antecedent can be as a result of a number of various physiological measures. A combination of CNS indicators with peripheral ANS or SNS measures provides a cross-validation for the effects of cognitive or affective psychophysiological processes towards marketing stimuli (Stewart & Furse, 1982).

Figure 4.7: Psychophysiological framework in marketing research



*Source: A*dapted from Wang and Minor (2008)

Considering the physiological measures listed in the framework in Figure 4.7, each neuromarketing or psychophysiological technique will be explained next.

4.4.5 Psychophysiological techniques in measuring cognitive and affective processes

Research in the neuroscience field identifies ten psychophysiological techniques as the most used measures in marketing research. Table 4.2 lists these ten techniques.

Table 4.2: Ten psychophysiological techniques

Psychophysiological systems	Psychophysiological techniques
Central nervous system (CNS)	Non-hemispheric brain wave analysis
	Hemispheric lateralisation
	Brain imaging and analysis
Autonomic nervous system (ANS)	Pupillary response
	Electrodermal analysis
	Voice pitch analysis
	Heart rate response
	Vascular activity
Somatic nervous system (SNS)	Facial muscle activity
	Eye-movement analysis

Source: Adapted from Wang and Minor (2008)

Interest in psychophysiological marketing research started in the 1960s. Techniques such as pupillary response and electrodermal analysis were used in the early experiments. Since the 1970s, non-hemispheric brain wave analysis, voice pitch analysis, hemispheric lateralisation and eye-movement analysis were introduced to marketing research. Since then, cardiovascular activity and facial muscle activity have been further explored (Wang & Minor, 2008).

Psychophysiological research decreased in the 1990s because a number of research critics were concerned about the reliability, validity and applicability of the techniques. Today, electrodermal analysis, facial muscle activity and eye-movement analysis have been widely accepted as techniques for marketing researchers. Accordingly, these techniques were used to conduct the current research.

The primary intention to use neuroscientific techniques in research practice is to identify the subconscious processes of consumer behaviour. Consequently, a discussion of the foundational aspects of psychological processes accompanied by a neuromarketing approach identifies the channels in which each consumer response can be measured.

Considering the extensive capabilities of neurophysiological measures and techniques, and for the purpose of the current research, a neuromarketing methodological approach was adopted with the aim of testing three main physiological responses. A description of each technique accompanied by the underlying theory of the specific consumer behaviour measured is included in this

discussion. A detailed approach of each neurophysiological technique is explained in the methodology chapter, and a list of all ten neurophysiological measures is presented in Addendum G.

4.4.5.1 Electromyography: A measure of emotional response

The face is the most important source of emotional expression where activity from the *zygotmatic major*, which pulls the corners of the mouth back to form a smile, and the *corrugator supercilii*, which draws the brow down and together to form a frown, is detected (Larsen, Norris & Cacioppo, 2003). According to Davidson (1993), the basis for distinguishing emotions is dependent on facial expressions and the autonomic nervous system.

Emotions are complex combinations of neural and chemical reactions that occur subconsciously and later become conscious feelings (Van Praet, 2012). Neurobiologists demonstrate that subconscious emotions influence thought. Changing rational thinking therefore can reshape emotions and behaviour. Neurobiologists and psychologists conceptualise emotion as adaptive changes in multiple physiological systems in response to external stimuli (Damasio, 1995). An important distinction needs to be made between the physiological emotion expressed and the feeling of the emotion itself.

According to Van Praet (2012), neurologist Antonio Damasio explored the integration of emotion and cognitive science by developing the somatic marker hypothesis model. According to this model of decision-making, decisions are formulated from somatic markers, feelings are associated with specific outcomes, and stored in the unconscious mind. The emotional association is later triggered and becomes the primary guide to decision-making. Marketers can learn from Damasio's model by designing their messages with emotional anchors such as sight, sound or smell that can be recalled at a later stage.

According to Hager and Ekman (1983), emotions are linked to facial expressions. Each facial muscle reveals multiple expressions. Certain facial muscles always signal distinct emotions. For example, the *zygomaticus major* produces a smile that is characteristic of happiness (Hager & Ekman, 1983). The *corrugator supercilii*, on the other hand, conveys multiple emotional expressions, making it difficult to identify a distinct emotion. Electromyography (EMG) methods are frequently used as this measure avoids reliance on observer judgement.

4.4.5.2 Galvanic skin response: A measure of short-term excitement or arousal

Physiological arousal that occurs in the sweat glands as a result of changes in the electrodermal activities in the sympathetic nervous system indicates interest, arousal or pleasure (Klebba, 1985). The electrodermal activities are monitored by means of galvanic skin response (GSR) or skin conductance (SCR). However, in published marketing research, GSR is more commonly used.

Emotional arousal occurs when an individual's brain can create vivid memories and experiences through exposure to stimuli (Van Praet, 2012).

4.4.5.3 Eye-tracking: A measure of attention, activation and relevance

Eye-tracking neuroscientific measures are used for the study of behaviour and cognition. Eye-tracking predicts how much attention is paid to certain elements of a marketing communication stimulus. According to Zurawicki (2010), an advantage of eye-tracking is the ability to monitor the changes in pupil dilation as well as the blink rate speed in order to assess the respondent's level of involvement and degree of excitement towards a stimulus. However, a disadvantage of this measure is that no reaction can indicate whether it is a positive or a negative attitude (Zurawicki, 2010).

4.4.6 The importance of neuromarketing for the study

Neuromarketing measures capture the attention level, emotional engagement and memory storage through cognitive and affective responses of consumers in response to a communication stimulus. It is a qualitative research technique that acts as a branch of cognitive neuroscience with the intention of further refining conventional marketing research techniques (Mehta & Panda, 2015). Researchers in the neuroscience field are focusing on identifying methods to improve traditional marketing research methods. Neuromarketing techniques appeal to the subconscious mind of a consumer, thus identifying and understanding the true and functional decision-making processes in a marketing context on a more in-depth level.

The current research employed neuromarketing as the primary methodology to test the influence of text messages on individual neurophysiological responses in a non-profit context. Although there are many neuroscientific techniques to apply in various research fields, only four primary neurophysiological measures were addressed in the current study. A review of these measures can be found in the methodology chapter. Neuroscientific research has primarily been based on consumer research, however, the current study used neuromarketing techniques to appeal to marketers in a non-profit context. A discussion with regard to consumer responses is applicable to individuals as donors.

4.5 SUMMARY

The chapter attempted to provide an understanding of the underlying nature of giving behaviour and donor involvement by explaining decision-making processes. The chapter explored donor behaviour that included factors of charitable giving, why people help, the helping decision process and finally, trust and commitment as antecedents of relationship marketing. Considering that the current study employed a neuromarketing methodology, the subconscious thinking and emotions that a donor experiences when exposed to a certain communication stimulus, were examined. The

elements that elicited the biggest influence on individual neurophysiological responses remain the primary focus of the study.

CHAPTER FIVE

METHODOLOGY

5.1 INTRODUCTION

This chapter outlines the objectives of the study accompanied by an exposition of the research design that was chosen to address the objectives. A description of the sample design, stimuli design, data analysis methods and the relevant statistical tests used is also provided.

The purpose of the chapter is to discuss the justification and appropriateness of neuroscientific techniques as the chosen methodology for the current study, in comparison to alternative research techniques. A detailed discussion is provided of the three primary neuroscientific techniques namely, galvanic skin response (GSR), electromyography (EMG) and eye-tracking (ET) technology.

5.2 PROBLEM STATEMENT

There has been a consistent growth in the number of non-profit organisations and their services and contributions, despite the fact that they have to compete for a limited pool of resources. The declining level of donations has prompted many marketing managers of non-profit organisations to explore new methods to motivate and influence individual involvement (World Giving Index, 2012).

Historically, non-profit organisations have not adopted marketing principles and practices (Mainwaring & Skinner, 2007), but modern day challenges have forced them to increasingly make use of marketing practices, particularly effective communication, to attract donors and donations (Kinnell & MacDougall, 1997). According to a report on non-profit communication trends by Miller (2015), communication is one of the biggest challenges facing non-profit communication managers. The time constraints associated with producing quality content as well as the budget for expenses towards measuring their communication effectiveness also influences their marketing initiatives.

The question arises as to whether an effective method of communication and design of feedback messages of a non-profit organisation to their donors can improve the current level of charitable giving, specifically donations, in South Africa. Against this background and for the purposes of this study, it was hypothesised that an effective feedback method, text messages in particular, can influence respondents' neurophysiological responses through levels of arousal, emotions and behaviour.

5.3 PURPOSE OF THE STUDY

The purpose of the research was to examine the effect of feedback text messages on respondent neurophysiological responses, and to gain a better understanding of the subconscious processes

these respondents experienced after exposure to the messages. Based on the interpretation of the respondents' levels of arousal and emotional responses, a further objective was to identify the most effective feedback message content elements that appealed to these respondents.

The subconscious responses of individuals may shed light on how to achieve an effective feedback message design that may ultimately influence the intention of individuals to donate, their level of commitment, and their level of trust in a non-profit organisation. The foundational effect of trust and commitment, in turn, may lead to the development and maintaining of long-term relationships between donors and non-profit organisations.

5.4 RESEARCH OBJECTIVES AND HYPOTHESES

Research objectives can be described as goals that need to be achieved by conducting research (Zikmund *et al.,* 2010). The overall objective of the study was to investigate the influence of feedback text messages on respondents' neurophysiological responses in a non-profit context. The primary objectives and secondary objectives are presented next, along with their appropriate hypotheses.

5.4.1 Primary objective

The primary objective of the study was to identify the influence of feedback message content on respondents' neurophysiological responses in a non-profit context.

5.4.2 Secondary objectives

The secondary objectives of the study were to assess the influence of independent and comparative non-profit feedback messages on individuals' neurophysiological responses, using electromyography (EMG) and galvanic skin response (GSR) measures. In addition, a secondary objective was to explore the influence of non-profit feedback messages on individuals' eye-tracking responses. The data were analysed from a gender perspective (male and female) and a decision-basis perspective (i.e. whether individuals made decisions on a rational or an emotional basis).

5.4.3 Hypotheses

Based on the primary and secondary objectives, the following hypotheses were formulated:

$H_{1:}$ Neurophysiological measures (a: GSR and b: EMG) do not differ from the baseline in text 1 to text 10

$H_{2:}$ Neurophysiological measures (a: GSR and b: EMG) do not differ from each other in text 1 to text 10

$H_{3:}$ Gender neurophysiological measures (a: GSR and b: EMG) do not differ from the baseline in text 1 to text 10

$H_{4:}$ Gender neurophysiological measures (a: GSR and b: EMG) for text 1 to text 10 do not differ from each other

$H_{5:}$ Neurophysiological measures (a: GSR and b: EMG) for text 1 to 10 do not differ from each other in the gender groups

$H_{6:}$ Decision-basis neurophysiological measures (a: GSR and b: EMG) do not differ from the baseline in text 1 to text 10

$H_{7:}$ Decision-basis neurophysiological measures (a: GSR and b: EMG) for text 1 to text 10 do not differ from each other

$H_{8:}$ Neurophysiological measures (a: GSR and b: EMG) for text 1 to 10 do not differ from each other in the decision-basis groups

The expanded hypotheses pertaining to each text message can be viewed in Addendum H. A hypothesis is not included for the eye-tracking measure as the findings were reported using a descriptive approach.

5.5 RESEARCH DESIGN

Research design is classified as a core activity in the research process that defines the nature or type of study. It is important that the research design addresses the problem statement and is best suited to achieve the objectives of the study. A thorough and detailed methodological plan is critical to the research process in order to ensure that the research conducted is performed efficiently and effectively (McDaniel & Gates, 2009). For the purpose of the current research, a neuroscientific methodological approach was used to address the primary objective of the study.

5.5.1 Secondary research

Secondary research refers to data that have been previously collected for a purpose other than the existing research study (Zikmund *et al.,* 2010). It is the process of re-analysing data in order to solve the original research problem by using established statistical techniques (Glass, 1976). According to Stewart and Kamins (1993), secondary research is a quick and inexpensive method to answer a number of specific research questions. It can also be classified as a theoretical base and the point of departure for primary research.

For the current study, a thorough literature review was conducted to gain a clear understanding of the research problem. The topics addressed included donor behaviour, the current state of the non-profit sector in South Africa, effective communication, feedback message design and neuroscience. The emerging interest in the neuroscience field has allowed researchers in marketing to shift their focus to neuromarketing-related studies. As neuromarketing can be

considered as a fairly young research field, a thorough review of the available neuromarketing literature was conducted for the current study.

The Stellenbosch online library databases namely E-journals, Wiley Online Library, Springer Link and J-STOR online provided an array of relevant journals and articles. The *Journal of Marketing*, the *International Journal of Non-Profit and Voluntary Sector Marketing*, the *Journal of Non-Profit and Public Sector Marketing* as well as the *Journal of Consumer Research and Communications Research* were some of the popular sources that were cited as references for the study. More specific to neuroscience, the *Journal of Personality and Social Psychology*, the *Journal of Physiology, Neuropsychology and Psychophysiology* were consulted.

A number of marketing-related textbooks focusing on marketing management, business research methods, communication strategies as well as consumer behaviour theories and neuromarketing research were also consulted. These were supplemented by online journals and textbooks, working papers and publications by the *Charities Aid Foundation* involving current research into the comparative non-profit sector.

5.5.2 Primary research

Primary research is a process that requires fieldwork in the form of data collection (Zikmund *et al.,* 2010). The research technique for the current study made use of neuromarketing techniques. Neuromarketing is the methodological approach that was used to identify an individual's neurophysiological response to a stimulus. Neuromarketing techniques were chosen to identify the neurophysiological responses of individuals towards a specialised group of pre-designed feedback messages on behalf of non-profit organisations.

The current research study adopted an electronic observation method, and within-subject exposure making use of experimental elements. The research took place in a laboratory environment where respondents were exposed to ten feedback text messages whilst their physiological responses were measured and recorded using neurophysiological techniques.

A detailed and structured discussion of the methodological approach will be discussed next. The discussion includes a review of the neuromarketing discipline, an extensive review of the specific neuroscientific devices used for the purpose of the study and, lastly, a comparison of neuromarketing as a primary methodology as opposed to traditional methodologies. Additional information regarding the available neuroscientific tools and apparatus can be viewed in Addendum G.

5.5.2.1 Neuromarketing overview

Neuromarketing, a subcategory of neuroscience, is a relatively new study field that has not received much attention from a marketing research perspective. Lee *et al.* (2007) define

neuromarketing as a field of study that applies neuroscientific methods to analyse human behaviour in terms of marketing exchanges through neuro-imaging techniques. Since the emergence of neuromarketing more than a decade ago, neuromarketing techniques have gained significant credibility as a result of continuous research, thereby encouraging advertising and marketing professionals to adopt a neuromarketing methodology.

A number of advances have been made in the broader study field of neuroscience that are currently unrecognised in the marketing research field. Previously, methods for self-assessment relied on the individual's ability to accurately and honestly report their attitudes and behaviour towards a certain stimuli (Petty & Cacioppo, 1983). Neuromarketing, on the other hand, facilitates the collection of an individual's neurophysiological response recorded as a result of exposure to a stimulus. These responses are subconscious and uncontrollable by the respondents, allowing for an accurate interpretation (Cacioppo & Petty, 1985). A comparison of neuromarketing versus traditional marketing will be explained next.

5.5.2.1.1 Neuromarketing versus traditional marketing

The effectiveness of traditional research methods to predict consumer behaviour by means of, for instance, advertising and campaign design has proved to be challenging for marketers in the past. It is believed that individuals are able to describe the cognitive processes experienced, however, as previous neuroscientific research reveals, there are a number of subconscious elements that cannot be captured by traditional marketing research methods (Morin, 2011). Neuromarketing closes this gap, by being more accurate in measuring and detecting neurophysiological changes (Kroeber – Riel, 1979). Individuals (respondents) often are not willing to reveal their true feelings at risk of damaging self-esteem. Distortion in individual descriptions can also be as a result of social associations such as peer pressure, time constraints and incentives. Neuromarketing research extends beyond using only traditional marketing research, such as qualitative and quantitative research methods, which rely on respondent willingness and accuracy in the form of written or verbal communication (Lee *et al.,* 2007; Zaltman, 2003).

For many years marketing professionals have relied on personal experience, self-reporting and intuition to predict consumer decision-making (McDaniel & Gates, 2007). Consequently, the advances in neuromarketing techniques and technology have provided marketing professionals with the ability to tap into consumer minds, using scientific equipment in order to collect valuable information on the subconscious processes experienced by individuals when exposed to, for instance, marketing material (Lee *et al.,* 2010). A neuromarketing approach overrides the limitations of the conventional research techniques that require marketing professionals to trust the feedback received and recorded from individuals (Morin, 2011).

According to Kenning *et al.* (2007), evidence suggests that an analysis of subconscious psychological processes provides a more effective channel in which to gain a better understanding

of consumer decision-making by simultaneously measuring both consumer brain activity and bodily responses.

Although quantitative surveys appeal to larger sample sizes with more structured responses, the method fails to connect to a subconscious and emotional level within the human brain (Van Praet, 2012). As a result of the nature of the findings, responses are limited to individual expressions that are often conducted online where responses are uncontrolled and anonymous. The development of advanced tools that appeal to the subconscious processes in the brain when it is under experimental testing has become a valid area of interest for researchers (Van Praet, 2012).

Since the 1960s, a number of measurement techniques have been used to assess consumer reactions to marketing stimuli. Types of measures include behavioural measures, verbal measures and psychophysiological measures (Stewart & Furse, 1982; Wiles & Cornwell, 1990; Poels & Dewitte, 2006). There are concerns with the number of limitations associated with the provision of true internal reactions to external stimuli. Furthermore, behavioural measures become problematic as the processes between affect and behavioural consequences are not reflected (Wiles & Cornwell, 1990).

Wiles and Cornwell (1990) also stated that self-reported verbal indicators are unable to effectively measure true consumer affect as a result of the complexity of thought. Additionally, respondents are more likely to give socially acceptable feedback instead of true feelings. Zaltman (2003) studied neurology and psychology to understand how consumers process information. Traditional marketing research methods are structured towards appealing to reason and rational decision-making instead of emotion. The traditional data collection process gathers information from respondents by means of conscious and logical methods. Logical thoughts are easier for consumers to articulate.

5.5.2.1.2 The gap in neuromarketing research

The development of the neuromarketing research field has created extensive research scope. However, very few marketing research professionals are equipped with formal training in neuroscience. Since 2002, neuromarketing has made substantial progress as advertising and marketing organisations are increasingly facing economic pressure to predict return on investments of advertising campaigns (Morin, 2011). According to Butler (2008), further research in the neuromarketing field is required to confirm its academic relevance.

Bercea (2011) deliberates the gaps between traditional marketing research and neuromarketing research by considering neuromarketing as a new research technique and highlighting the uses, measures, advantages and limitations of each neuromarketing tool. According to Van Praet (2012), physical observation and an analysis of bodily reactions when exposed to a stimulus provide a distinct advantage above large-scale quantitative surveys. Highly skilled moderators are able to

detect the meaning behind body language by means of studying sub-conscious responses. Neuromarketing research is able to explore consumer behaviour in response to marketing stimuli by using facial measure monitoring and skin conductance measures.

5.5.2.2 Neuromarketing techniques used for the study

Experimental studies that adopt neurophysiological data collection methods have the primary intention of assessing and analysing a consumer's cognitive and affective processes in response to a pre-determined stimulus (Ohme *et al.*, 2010). According to Kenning and Plassmann (2005), after developing the hypotheses for the research, it is important to identify the correct combination of neurophysiological methods that are most suitable for the nature of the study. A combination of neuroscientific techniques, such as GSR and EMG measures, provides a cross validation for the specific consumer responses and effects as a result of exposure to the stimuli (Ohme, Reykowska, Wiener & Choromanska, 2009; Ohme *et al*., 2010; Berman, Jonides & Nee, 2006; Cacioppo & Berntson, 1992).

In previous literature, it was reported that efforts to measure emotional responses by means of post-encounter and self-reports are unsatisfactory (Hazlett & Hazlett, 1999; Boshoff, 2012). Therefore, based on the belief that self-report measures have the potential to exhibit social desirability bias, a neuroscientific approach was adapted as the main data collection method, in line with the primary objectives of the study. More specifically, galvanic skin response (GSR) was used to test short-term excitement, eye-tracking (ET) was used to test which elements attracted attention, and electromyography (EMG) was used to test emotional expression through the facial muscles. The stimuli consisted of two groups of ten pre-designed text messages to which the respondents were exposed. Following the data collection and analysis, a focus group was conducted for qualitative and interpretative purposes.

The characteristics of each tool were reviewed in order to ensure that the chosen techniques were the most suitable to address the objectives of the study. The analysis of the data established whether there were significant differences from the baseline scores of the facial muscle activity and arousal levels when an individual (respondent) was exposed to a stimulus. Additionally, eye-tracking technology was used to identify the location and path of sight when an individual was exposed to a stimulus. The scores obtained from the three neuroscientific techniques formed the dependent variables in the study. An in-depth discussion of each technique is provided in the next section.

5.5.2.2.1 Galvanic skin response/skin conductance

One of the neuroscientific measurement methods that was used in the study was galvanic skin response (GSR) or skin conductance. This method is primarily used to detect changes in skin moisture when the autonomic nervous system is activated, which is an indicator of arousal

(Ravaja, 2004; Boshoff, 2012). The sympathetic nervous system, parasympathetic nervous system and autonomic nervous system, control the eccrine glands that are widely distributed throughout the skin. Electrical activity is produced by the sweat glands and is an indicator of internal psychological and physiological processes (Kroeber-Riel, 1979).

Humans are unable to control their autonomic nervous system, and as a result the electrodermal responses are unbiased indications of arousal. Technological advancements along with higher levelled statistical programmes have helped to overcome the complexities concerning the separation of 'noise' and 'arousal' responses. However, the limitations with GSR are that the direction of valence of an emotional response cannot yet be based on GSR data (Ohme *et al.*, 2010). According to Bagozzi (1991), the advantages of using GSR as a physiological measure recorded in real time include that it avoids distortion of true consumer reactions and that it monitors subconscious thoughts below the individual's level of awareness that would have otherwise not be retrieved and translated verbally.

In the current study, GSR was measured using an electrode placed on the distal phalanx of the forefinger and the middle finger of the left hand. The GSR score has a baseline level of zero. Therefore, a negative value is not warranted. The strength of the arousal experienced is dependent on a higher index.

5.5.2.2.2 Electromyography

The electromyography (EMG) method is used to evaluate physiological properties of the facial muscles (Ohme *et al*., 2010). The three muscles that are measured and studied the most extensively are the *corrugator supercili*, *zygomaticus major* and the *orbicularis occuli.* The *corrugator supercilii* muscle is found at the top of the eyebrow. The brows are drawn together when activation occurs to form a frown. The *orbicularis oculi* muscle is located under the eye to detect the honesty of a smile while the *zygomaticus major* is positioned on the cheek, which is linked to responses from the mouth such as a smile.

In line with research by Dimberg (1990) and Dimberg and Petterson (2000), the current study adopted the approach that proposes the difference between a smile (*zygmaticus major*) and a frown (*corrugator supercilii)*, which suggests an emotional response. Depending on the muscle activity with the more dominant result, the reaction can be classified as positive or negative to a stimulus. EMG measures have the ability to detect valence and intensity of a response as demonstrated by Cacioppo, Petty, Losch and Kim (1986) and Dimberg (1990). This interpretation of muscle movements yields subconscious emotional expressions. EMG has the ability to test voluntary (*zygomaticus*) and involuntary (*corrugator and orbicularis*) facial muscle movements (Dimberg, Thunberg & Elmehed, 2000). Facial muscle activity is measured to identify emotional response and social communication to certain stimuli. Hazlett and Hazlett (1999) concluded that in

comparison to self–report, facial EMG is a more sensitive indicator of emotional response giving a more accurate understanding of reactions and behaviour.

According to Ohme *et al.* (2010), EMG has a history in research concerning emotions. Dimberg and Petterson (2000) and Larson *et al.* (2003) demonstrate that facial muscle activity and expressions can be directly linked to emotional conditions. EMG measures the changes in electrical activity expressed by facial muscles. Researchers have validated that EMG measures indicate emotional valence and intensity (Cacioppo *et al.*, 1986). Measurements using EMG techniques have been recorded using a variety of different stimuli such as pictures, imagery, sounds and most importantly, words (Cacioppo *et al.,* 1986; Dimberg, 1990, Dimberg & Petterson, 2000). For the purpose of the current study, the primary objective was to identify the influence of feedback text messages on individuals' neurophysiological responses. Therefore, EMG was used as a neuroscientific tool to collect data for analysis. Also, EMG was recorded using miniature Ag/AgCI electrodes placed on the *corrugator supercilii* (the muscle that runs over the eye-brow), *zygomaticus major* (the smile muscle) and the *orbicularis occuli* (the muscle which is found under the eye) on the left hand side of the face.

5.5.2.2.3 Eye-tracking

Eye-tracking (ET) is a neuroscientific measure of behaviour and cognition that does not measure brain activity (Bercea, 2011; Zurawicki, 2010). Eye-tracking identifies where a respondent is looking ('point of gaze'), how long a respondent is looking, the path of the respondent's view and changes in pupil dilation in response to a stimulus. The equipment is able to detect visual or spatial attention (Perrachione & Perrachione, 2008). Eye-tracking systems monitor the micro saccadic movements, or rapid eye movements, that reflect attention and focus (Laubrock, Engbert, Rolfs & Kliegl, 2007).

Eye glaze and the location patterns of the eyes identify the parts of a stimulus to which respondents are most attentive (Mehta & Panda, 2015). In the current study, eye-tracking technology was used to identify the location and path of sight when an individual was exposed to a stimulus. The eyes automatically follow areas of interest, attraction or threats. Changes in eye movements such as speed, duration of fixation, pattern and frequency of blinking and searching behaviour patterns are relevant in understanding an individual's response to a stimulus (Genco *et al.*, 2013).

Each movement can be monitored and measured using millisecond-by-millisecond eye-tracking software and hardware. Fixation refers to the stationary moments representing a greater interest in a stimulus. The movement of the eye pauses in a certain position (Bercea, 2011). A longer fixation may indicate difficulty in interpretation or uncertainty, while a shorter fixation may indicate greater processing fluency (Genco *et al.*, 2013; Zurawicki, 2010).

Saccades refer to rapid eye movements occurring between fixations. A saccade is a switch to another position (Bercea, 2011). Information acquisition is not taking place during the visual search. The direction or distance of saccades indicates changes in understanding, attention or goals. Regressive saccades indicate confusion or lack of understanding (Genco *et al.*, 2013). Gaze paths refer to the total amount of fixations and saccades over time. Straight yet rapid gaze paths can be interpreted as efficient visual navigation. Confusion or lack of direction is indicated by longer routes (Genco *et al.*, 2013). The series of fixations and saccades is known as the scan path. Scan paths are used in visual perception, cognition intent and interest (Bercea, 2011).

Eye blinks are believed to act as a release of attentional focus from a stimulus in order to engage with internal mental processing. Pupil dilation is measured by pupillometry that detects changes in pupil size. Research has found that pupils dilate in response to emotional arousal, attention and information (Genco *et al.*, 2013). Monitoring pupil dilation and the blink rate signals greater involvement in processing a message. O'Connel, Walden and Pohlmann (2011) indicate that eye tracking reports confirm higher accuracy of information in comparison to self-reporting measures. The eye tracker functions remotely and is unobtrusive. Respondents were not required to remove glasses or contact lenses during the testing, thus allowing for a natural environment. A video-based tracker is more commonly used while a respondent looks at the stimuli (Zurawicki, 2010). In the current study, respondents were not required to remove glasses or contact lenses thus allowing for a natural environment. Heat maps were produced once the data had been collected.

Heat maps are two-dimensional representations of the data that are presented graphically. The temperature colour spectrum was used for the current study in which to identify the areas most pertinent to respondents in terms of the level of attention. Heat maps have the ability to summarise larger quantities of data by providing an immediate visual overview of the data in addition to patterns and trends that may exist. If presented numerically, the data would be more complex to analyse and the ‘bigger picture’ would be more difficult to grasp (Bojka, 2009). Given the increased popularity and usage of the technology, the current research chose the visual attention heat maps over accuracy heat maps.

5.6 EXPERIMENTAL VALIDITY

According to Heeler and Ray (1972), the most important criterion in the assessment of a research measure is validity. Validity is a measure of the accuracy or the extent to which a true score represents a concept (Zikmund *et al.*, 2010). Reliability is an important scale but it cannot predict or assume validity (Zikmund *et* al., 2010). Two types of validity are addressed in an experimental study, namely external validity and internal validity. External validity refers to how accurately the research results, i.e. from the respondents, can be generalised in terms of an entire population (Chen & Rossi, 1987).

5.6.1 Internal validity

Internal validity can be compromised by a number of extraneous variables. Extraneous variables can be defined as variables that may interfere with the dependent variables of a study (Zikmund *et* al., 2010). There were a number of extraneous variables that could affect the internal validity of the current study. The testing effects (that is, the effect of a pre-test affects the response during an experiment) as well as the mortality effect (that is, respondents withdraw from the research before it is completed) did not apply. The instrumentation effect and selection effect were considered as the only possible extraneous variables that could affect internal validity applicable to the current study (Zikmund *et* al., 2010).

5.6.1.1 Instrumentation effect

Changes in wording, questions, procedures or interviewers that are used to test the respondents cause an instrumentation effect. In the current study, there were no changes in the content of the stimuli or interviewer procedure, therefore the instrumentation effect was eliminated.

5.6.1.2 Selection effect

The selection effect develops as a result of sample bias. The research characteristics of a sample must be similar to avoid the selection effect thus lowering the internal validity of the study (Blumberg *et al.,* 2008). The number of respondents in each group is kept constant as it could affect the final results (Zikmund *et al.,* 2010). In the current study, respondents were selected by means of a convenience sample. The number of respondents in each group was kept constant. Additionally, the researcher selected respondents for the focus group who were unfamiliar with the study.

5.6.2 External validity

In order to ensure external validity, a single exposure to only one group of text messages enhanced the external validity of the results. Bias of stimuli repetition (demand effects) was avoided by using a single exposure to the marketing stimuli. The data collection method was realistic thus resembling natural subconscious reactions to text messages similar to real-world practice. Face validity was ensured as literature and research experts in the marketing and neuroscientific field were consulted during the research process as part of the focus group.

Randomisation refers to the random assignment of respondents to an experimental group (Zikmund *et al.*, 2010). Randomisation does not eliminate effects on outcomes caused by extraneous variables, however, it is used to equally distribute any effect thereafter (Chen & Rossi, 1987; Zikmund *et al.,* 2010). For the purpose of the current study, the respondents were randomly assigned between the two groups of text messages, or stimuli. Additionally, respondents were exposed to the stimuli in a random sequence.

5.6.2.1 Validity and reliability of neurophysiological techniques used in the current study

Wang and Minor (2008) provide an extensive research review of the three neurophysiological techniques, focussing on the assessment, applicability, validity and reliability of each neurophysiological measure. Table 5.1 offers a summary of the neurophysiological techniques applicable to the current research along with a brief explanation of each measure's validity, reliability and applicability.

Table 5.1: Summary of neurophysiological techniques used in the current study

Measure	Measurement device	Psychological antecedents	Validity	Reliability	Applicability	Authors of relevant studies
Electrodermal analysis using GSR	Resistance or conductance to passing current in human skin	Arousal	Valid measure for arousal and pleasure Not valid for warmth or attention	Reliable measure of arousal or pleasure	Results influenced by experimental environment	Vanden, Abeele and MacLachlan (1994a) Bolls, Lang and Potter (2001)
Facial muscle activity using EMG	Electrical measure of facial muscle contractions	Pleasure	Valid measure for valence (pleasure)	Reliable measure for valence (pleasure)	Results influenced by respondent sensitivity	Hazlett and Hazlett (1999) Bolls, Lang and Potter (2001)
Eye movement analysis using ET	Number of fixations	Attention memory information processing	Validity in measuring memory depends on cognitive learning	Not reliable	Results influenced by respondent's eye conditions	Kroeber-Riel (1984) Pieters, Rosbergen and Wedel (1999)

Source: Adapted from Wang and Minor (2008)

The neuromarketing techniques featured in Table 5.1 were the only measures used in the current study, and will be discussed next.

5.6.2.1.1 Reliability and validity of eye movement

The number of fixations of an individual during exposure to a stimulus is measured by eye-movement techniques. Eye patterns can expose the attention received by certain elements of a complex stimulus. Kroeber-Riel (1979) indicates that most studies that focus on eye movement research as a physiological measure have not established meaning. Consequently, concurrent validity is unclear. Furthermore, Kroeber-Riel (1979) postulates that eye movement validity as a predictor of recall and memory is solely based on the role of cognitive learning. It is argued by Pieters, Rosbergen and Wedel (1999) that, although external influences or disturbances in an experimental environment can be controlled, eye movement measures are not reliable as respondent tear fluid or excessive blinking easily influences eye movement patterns.

5.6.2.1.2 Reliability and validity of galvanic skin response

Klebba (1985) and Kroeber-Riel (1979) consider electrodermal response as a reliable and valid measure of arousal. Researchers are able to accurately identify the magnitude of the response. Although it has been reported that the technique is not valid in measuring attention (Vanden Abeele & MacLachlan, 1994a), in order for results to be accurate, the electrodes must be carefully placed and performed in an area that is controlled and cleaned (Stewart & Furse, 1982). Cacioppo and Petty (1983) suggest that electrodermal activity must be measured at different times of response to ensure reliability.

5.6.2.1.3 Reliability and validity of facial muscle activity

Facial muscle activity is a voluntary response generated by the somatic nervous system. Electrical signals measure the contraction of the facial muscles through the placement of electrodes in response to a stimulus (Wiles & Cornwell, 1990). The current research used the EMG method, which monitor smaller areas of facial muscles and makes a precise measurement of the degree of visible activity possible. EMG is the most popular measure used in marketing research studies. Research by Bolls, Lang and Potter (2001) indicates the validity and reliability of the facial muscle activity measure. The EMG technique is capable of identifying the direction of an effective response such as valence. However, Bolls *et al.* (2001) believe that physical movements or bodily sensitivities might influence the electric signal that is produced as a result of facial muscle movement.

5.6.3 Stimuli design

It was hypothesised that a statistical significant difference would be apparent when the neurophysiological measures were compared to the baseline score for each respondent after exposure to a text message. Therefore, the stimuli consisted of two groups of ten pre-designed text messages of feedback from two different non-profit organisations. These text messages formed the independent variables in the study. The dependent variables comprised the EMG and GSR scores. Eye-tracking measures were also collected.

5.6.3.1 Text message design

A channel via social media was used to connect with and collect messages from the public. A message designed by the researcher was sent to forty individuals via Facebook Messenger. In order to provide context, individuals were presented with a statement illustrating the existing status of the non-profit industry in South Africa.

In response, individuals were asked to answer a hypothetical question regarding donations made to a non-profit organisation. Those who chose to participate (twenty respondents) were requested to send text responses illustrating their expectations of a message of gratitude that they would

expect to receive from a non-profit organisation after a personal donation had been made. Table 5.2 demonstrates the message sent to the public.

Table 5.2: Messages used in the design of stimuli

"Masses of non-profit organisations in South Africa struggle due to a lack of funding. I am part of a big research project to try and make a difference. Please do me a favour and answer the following question: Suppose you made a donation to a non-profit organisation (of your choice). Afterwards, what message should the non-profit send to you in response to your donation?"

The collected messages can be viewed in Addendum D. The twenty completed text message responses were reviewed and condensed into ten feedback text messages. Each message was designed to differ in terms of the content included such as message source, monetary value, numeric values, words of gratitude, emotive expressions, narratives or standard thank you's. Each message was of a similar design with the same overall purpose of thanking a donor for a donation as a method of feedback from a non-profit organisation.

In addition to the ten text messages, two warm-up statements or distractors were included. These warm-up or distractor messages were included as part of the stimuli group to prevent the participants from acknowledging any trends in the stimuli. The statements were generalised and coincided with the meaning of the final stimuli group, however, they were not deemed as primary to the study. Consistent with a within-subject design, a stimulus followed by a modification or warm-up statement was shown before the respondents were exposed to the following stimulus or measure (Ferguson & Takane, 1989). Each stimuli group were exposed to ten identical text messages, however, the non-profit organisation represented in the messages was different. The complete set of pre-designed stimuli accompanied by the warm-up statements can be viewed in Addendum E.

The first non-profit organisation, referred to as 'non-profit one' (NPO one), represented *Cheetah Outreach*, an organisation based in Somerset West and dedicated to the conservation and protection of the wild cheetah. The second non-profit organisation, or 'non-profit two' (NPO two) referred to *Reach for a Dream*, a non-profit organisation based in Johannesburg and dedicated to fulfilling dreams of children with life-threatening illnesses. The first group of respondents were exposed to the text messages in non-profit one concerning *Cheetah Outreach*. The second group of respondents were exposed to the text messages in non-profit two concerning *Reach for a Dream*. It was required that two different non-profit organisations representing different industries were used to assess the robustness of the research results.

5.6.3.1.1 Presentation of text messages

The text messages were presented individually on a computer screen. The text font was Arial, size 24, centred and grey in colour. The screen had a white background. The respondents were exposed to ten text messages individually in a random sequence. By modifying the wording of the text messages, different neurophysiological responses could be detected.

The purpose of the study was to assess whether modification of the message content such as numeric values, emotional wording and message sources had an influence on the way in which respondents reacted at a subconscious level. Prior to the exposure to the stimuli, respondents were instructed via text messages on the screen, to pretend as though they had just made a donation before reading the stimuli. Each respondent was exposed to a total of ten feedback text messages excluding the two warm-up statements.

5.6.3.2 Independent variables

Each feedback text message, or stimulus, contained varied message content elements. As mentioned previously, the study assessed whether a neurophysiological reaction took place in response to exposure to the feedback text messages. Additionally, the research tested whether there were significant differences between the message content elements that were used in the message design.

The feedback text messages were classified as messages of gratitude thus portraying the same meaning and purpose. The overall objective of the message was to provide thank you's to an individual for his or her donation or support towards a non-profit organisation. An indirect communication strategy was used in the design of the messages with the aim to influence beliefs and attitudes regarding a specific behaviour. However, a specific action was not required (Frazier & Summers, 1984).

The feedback text messages were identical for both groups, but the difference was in terms of the name of the non-profit organisation involved, in addition to any factual information relevant to the specific non-profit organisation. In the following discussion of the text messages, *Cheetah Outreach* (NPO one) is used as the example group for the explanation of the text messages. However, as a result of the differences in factual information provided, text six and text ten relating to *Reach for a Dream* (NPO two) were also included as reference. .

5.6.3.2.1 Text message one – simplified statement

Text one, *'Thank you for your donation!'*, is a short statement of gratitude thanking individuals for their donation. There were no specific message design elements tested in text one, however, the message can be classified as a simple statement.

5.6.3.2.2 Text message two – simplified statement specific non-profit organisation

Text two, *'Thank you for your donation to Cheetah Outreach!',* is a simple statement of gratitude thanking individuals for their donation whilst mentioning the name of the non-profit organisation to which the donation was made. The impact of the element tested was mentioning the name of the non-profit organisation.

5.6.3.2.3 Text message three – elaborate wording

Text three, *'Thank you for your generous donation to Cheetah Outreach. We value your support – it really makes a difference!',* is an elaborate statement of gratitude, thanking individuals for their donation. The name of the non-profit organisation is also included. The message assured individuals that their support was valued and had made a difference to the non-profit organisation. Based on the communication model by Schiffman and Kanuk (2009), messages are verbal or non-verbal, one-sided or two-sided or factual or emotional. Text message three applies descriptive wording such as 'generous' and 'really'. The message is lengthy and verbose, while it is an example of an abstract message where no specific information is provided. The impact of the element tested was the emotive wording such as 'generous' and 'really'.

5.6.3.2.4 Text message four – monetary numeric values

Text four, *'Thank you for donating R500 to Cheetah Outreach!',* is a simple, factual statement that expresses thank you's to individuals for donating to the non-profit organisation by indicating the Rand monetary numeric amount donated. As previously stated, the communication model by Schiffman and Kanuk (2009) classifies messages as either verbal or non-verbal, one-sided or two-sided or factual or emotional. In order for a message to be perceived as credible, Lindsay and Ah Yun (2003) argue that the message requires a certain level of factual and precise information to be considered as verifiable. Braesler and Burgoon (1994) refer to concreteness as a manipulation of message vividness. Text four can be classified as concrete as the content is specific and factual

5.6.3.2.5 Text message five – collective monetary numeric amount

Text five, *'Thanks to your donation we have managed to raise R250 000 for Cheetah Outreach. Thank you for making a difference!',* is a detailed two-part statement expressing gratitude by using a monetary amount in Rands. The message first informs individuals of the amount in Rands, namely R250 000 that has been raised with the help of their donation. The message promotes direct involvement from the individual. The message ends with a simple statement thanking the individuals for making a difference rather than for their donation. The name of the non-profit organisation is included in the first part of the message. The impact of the element that was tested was the use of large monetary values. Many charitable appeals try to materialise a donor's support by emphasizing a feeling of connectedness (Smith & Berger, 1996). According to Grau and Folse

(2007) donation cues are important to individuals who are less involved with non-profit organizations. Additionally, research by Petty and Cacioppo (1979) suggests that increased involvement improves the importance of message content that in turn promotes persuasion.

5.6.3.2.6 Text message six – factual, quantitative statement

Text six, *'Your donation has helped us to save 150 cheetahs in the past 12 months!' / 'Your donation has helped us to support 16 520 children in the past 12 months!',* is a simple statement informing individuals of how their donation has made a difference. The message is specific as it states how many cheetahs/children were saved with the help of the individuals' support. The length of time in which the goal was achieved is included in the message. Individuals are assured that their donation has had a positive influence on the non-profit organisation. The impact of the element tested was the inclusion of numeric values.

5.6.3.2.7 Text message seven – generalised address

Text seven, *'Dear supporter, thank you for your donation to Cheetah Outreach!',* addresses the individual as a 'supporter'. The statement proceeds to thank the individual for the donation to the non-profit organisation. The 'supporter' is thanked for the donation. The impact of the element tested was the use of a direct address to the individual. In the instance of the message, according to Zaichkowsky (2012), personal elements, such as 'dear supporter', affect the level of involvement between an individual and a message, thus promoting persuasion (Petty & Cacioppo, 1979).

5.6.3.2.8 Text message eight – elaborate generalised address

Similarly, text eight, '*Dear kind supporter, thank you for your donation to Cheetah Outreach!',* makes use of a direct address. However, emotive wording is added, by addressing the individual as a 'kind supporter'. The non-profit organisation is mentioned and the 'kind supporter' is thanked for his or her donation. The impact of the elements that was tested in the message included the use of a direct address and emotive wording. As mentioned previously, personal elements, such as 'dear supporter', affect the level of involvement between an individual and a message. Also, research by Petty and Cacioppo (1979) suggests that increased involvement improves the importance of message content that in turn promotes persuasion.

5.6.3.2.9 Text message nine – message source

Text nine, *'Liesl Smith (Cheetah Outreach manager): Thank you for your donation towards Cheetah Outreach!',* makes use of a message source. The name of an individual in charge at the non-profit organisation is mentioned. The message source is included to provide credibility by informing the individual that his or her donation is acknowledged by an employee of the non-profit organisation to which the donation was made. The message is thus a simple statement, thanking

the individual for the donation to *Cheetah Outreach* on behalf of Liesl Smith, the facility manager. The impact of the element tested was the presence of a message source.

Source credibility suggests that the effect of the message on individuals is based on a sense of trust and expertise projected from an endorser or a source (Kelman, 1961; Buda & Zhang, 2000; Dholakia & Sternthal, 1977; Domino, 2003). According to Domino (2003), information that individuals gain from the source is capable of influencing certain opinions, behaviour and beliefs. Source credibility can be considered as an important factor when compiling a message.

5.6.3.2.10 Text message ten – narrative statement

Text ten, *'Your support has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Sheperd Dog Programme in support of protecting the wild cheetah!' / 'Your support has contributed towards helping Reach for a Dream continue giving hope to children fighting life-threatening illnesses!',* is a narrative statement that is informative and lengthy. The narrative statement informs donors about how their support made a difference. Information with reference to specific facts and goals of the non-profit organisation are included thus informing the donor about the influence of his or her contribution. The message refers to the non-profit organisation as well as the specific source of the donations such as the Anatolian Sheperd Dog Programme or children with life-threatening illnesses and tested the impact that was created.

5.7 DATA COLLECTION METHOD

The study used electronic observation in a laboratory with between subject exposures making use of experimental elements. Respondents were invited to participate in a study involving neurophysiological responses to feedback messages in a non-profit context. All feedback messages were in text format. Participants were offered a monetary incentive of R250 for their participation. The research was conducted on ninety respondents of mixed age and gender.

Respondents were required to complete a pre-test questionnaire. The questionnaire requested respondents to indicate their gender by marking the appropriate block in Section A. Section B asked respondents to assess, on an agreement scale of one to seven, their attitudes towards helping others and their attitudes towards charitable organisations. Additionally, two scale items were included that requested respondents to indicate whether they believed they made decisions rationally or emotionally. Lastly, respondents were asked to read two short paragraphs with information on two non-profit organisations in Section C. After reading, two scale item questions followed where respondents had to indicate their level of familiarity with the non-profit organisations featuring in the information paragraphs.

Two groups, each consisting of forty-five respondents, were asked to view ten text messages. Every respondent was exposed to the ten messages individually. All text messages were shown on

a computer screen in a random order to control for demand effects, and were presented in the same format in terms of font type, font size, colour and position.

5.7.1 Neuromarketing research procedure

The data collection process took place in the Neurophysiological Laboratory of Stellenbosch University. The research was two-fold according to which respondents were required to complete a paper-based pre-test questionnaire prior to the neuromarketing assessment, followed by the neuromarketing measures.

5.7.1.1 Pre-test questionnaire

The pre-test questionnaire required respondents to provide demographic information such as gender as well as completing a pre-designed questionnaire consisting of eleven items on a seven-point scale, where 1 indicates strongly agree and 7 indicates strongly disagree. The scale items were sourced from previous literature by Webb, Green and Brashear (2000) and are applicable to a non-profit context. Respondents were asked to indicate their attitudes towards helping others (Webb *et* al., 2000), and their attitudes towards charitable organisations (Webb *et al.,* 2000

Data were collected that measured respondents' rational and emotional decision-making and thought processes. The study employed scales relating to decision-making styles requiring respondents to indicate whether they made decisions based on their emotional, impulsive and desirable feelings, also known as the heart. Alternatively, respondents were required to indicate on a seven-point scale, where 1 indicates strongly agree and 7 indicates strongly disagree, whether they generally made decisions using willpower, thoughts and prudence, also known as the head. Zaltman (2003) suggests that reason and emotion are inter-dependent thus working in collaboration with each other. Table 5.3 illustrates the scale items used for the purpose of the pre-test questionnaire.

Table 5.3: Scale items used for pre-test questionnaire

Author	Source	Section	Measurement dimensions	Number of scale items
Webb, Green & Brashear (2000)	Development and validation of scales to measure attitudes influencing monetary donations to charitable organisations	C	Attitudes towards helping others (AHO) Attitudes towards charitable organisations (ACO)	9
Shiv & Fedorikhin (1999)	Heart and mind in conflict: the interplay of affect and cognition in consumer decision-making	C	Decision basis (HH)	2

Finally, respondents were required to read two short paragraphs containing information about two non-profit organisations, namely *Cheetah Outreach* and *Reach for a Dream.* After reading each paragraph, respondents were required to indicate on a seven-point scale, where 1 indicates strongly agree and 7 indicates strongly disagree, their familiarity with each non-profit organisation.

The pre-test questionnaire accompanied by the information about each non-profit organisation can be viewed in Addendum F.

5.7.1.2 Neuromarketing measures

Before exposure to each group of feedback text messages, the baseline index for each respondent for each neuroscientific tool was recorded. Respondents were instructed to carefully look at the computer screen for the duration of the research procedure that lasted twenty minutes. Respondents were then informed that they would be exposed to a number of feedback text messages during which their neurophysiological responses (GSR, EMG and ET) would be measured and recorded. During the data collection, a message was displayed that instructed respondents to assume that they had already made a donation to the non-profit organisations mentioned in the research. There were no tasks required from the respondent during the research other than watching the images on the computer screen. The final data collection process took approximately nine weeks. The data were collected and statistically analysed by a respectable market research company, based in Europe.

5.7.2 Focus group

In order to validate and interpret the results, a post hoc focus group was held at Stellenbosch University after the final data set had been analysed. Focus group participants were requested to interpret a sample of the neurophysiological results. The focus group participants were unfamiliar with the study, however, they were all members of the Stellenbosch University's Economic and Management Sciences Faculty, and specifically included marketing experts.

The focus group consisted of ten members of all ages, of which two were male and eight were female. Each participant received a pack labelled 'Discussion material'. The pack consisted of a front page indicating the title of the study, a definitions page that provided a definition and explanation of neuromarketing as well as the three neuromarketing techniques that were used in the study, and lastly, twelve sets of results that required interpretation from the participants.

The groups of feedback text message results were chosen as a sample from the final results. Each set included two text messages from the stimuli relating to both respondent groups. The sets illustrated the messages that displayed statistical scores of significant difference. The sets made use of analysed results from an overall perspective, by gender and by decision-making basis in accordance with the structure of the results. Two messages were displayed per page. The text messages were centred and clear to read. An indicator of whether the neurophysiological score was positive or negative accompanied each text message.

The facilitator started the discussion by welcoming and thanking the participants for taking part in the research process. The background of the study was explained which briefly described the nature of a neuromarketing approach. The neuromarketing techniques applicable to the study were

summarised and explained. Participants of the focus group were then required to indicate whether there was a clear understanding of neuromarketing and its accompanying measures.

A total of twelve sets of results were discussed. Participants were required to interpret each set and provide thorough reasoning behind the given scores for each set of messages. After the discussion for each set, the participants were asked to indicate with a colour marker to which text message they took preference. Addendum J provides a summary of the key discussion points of the focus group.

5.8 DEPENDENT VARIABLES

The purpose of the research was to determine the influence of feedback text messages on neurophysiological responses. The dependent variables of the study can be described as the measures resulting from the two neurophysiological techniques, namely GSR and EMG, that were used to identify the different neurophysiological responses from respondents.

5.9 SAMPLING METHOD

The sample for the final data collection process comprised ninety respondents using a convenience sampling method. The recruitment took place at Stellenbosch University. The sample was divided into two groups of forty-five respondents each. Each group included a mixed number of male and female respondents of varying ages. The first group of forty-five respondents was exposed to the marketing stimuli relating to NPO one whereas the second group of forty-five respondents were exposed to the marketing stimuli relating to NPO two. Table 5.4 illustrates the sample design used in the study.

Table 5.4: Sample design

Non-profit organisation one (NPO one)	Non-profit organisation two (NPO two)
N=45	N=45
Cheetah Outreach	*Reach for a Dream*
10 Messages	10 Messages

According to Bercea (2011), neuromarketing studies typically have small sample sizes. The sample size of the current study was ninety individuals. Similar sample sizes were observed in studies by Ohme *et al.* (2009) - 45 respondents; (2010) - 45 respondents and Ohme *et al.* (2010) - 40 respondents.

5.10 DATA ANALYSIS

Neuromarketing software and Microsoft Excel were used to analyse the data by means of descriptive statistics and inferential statistics. GSR and EMG data were analysed using software supplied by Brain Products GmbH. The eye-tracking data was analysed by software supplied by SensoMotoric Instruments (SMI), more specifically the iViewRed250 system.

5.10.1 Descriptive statistics

Descriptive statistics use demographic variables that are analysed by means of frequency tables, where the mean scores can be analysed (Blumberg *et al.,* 2008; Zikmund *et al.,* 2010). Descriptive statistics were used to calculate the frequency in gender, age, attitudes towards helping others, attitudes towards charitable organisations, decision-making style and familiarity with the non-profit organisations.

5.10.2 Inferential statistics

Inferential statistics are used for an in-depth analysis of the interval, nominal and ordinal variables. Differences are tested using inferential statistical techniques. The data were analysed using an independent sample *t*-test. The baseline was normalised for each respondent individually prior to exposure to the stimuli as recommended by Tullet *et al.* (2012) that requires a 30 second resting state. The baseline value was thus recorded from the resting state before exposure to the stimuli. Each respondent was exposed to the stimuli in a random order and were equally distributed among the two groups of respondents.

5.10.2.1 Independent sample *t*-test

The data were tested using an independent sample *t*-test. Type one errors (alpha) were adjusted by applying Bonferroni correction to account for multiple comparisons. All assumptions for the test were met (Ohme *et al.,* 2010). The advantage of using a *t*-test is that variability across subject responses is taken into account. In order to determine whether there is a statistical difference between the mean scores, it firstly depends on the means and the variability in the responses. The *t*-test is the simplest and direct statistical test that is frequently used in neuromarketing. It is limited to a comparison of only two groups (Genco *et al.*, 2013). Statistical comparisons for both female and male respondents and rational decision-basis and emotional decision basis were conducted.

5.11 SUMMARY

The purpose of the research was to identify the influence of feedback text message design on respondents' neurophysiological responses in a non-profit context. The final data collection process adopted a neuromarketing approach. A set of ten pre-designed feedback text messages was designed as the primary stimuli. Each text message incorporated a variation in text message

content in order to test which message content elements were most effective and influential on respondents. Hypotheses were developed in order to test the effects of the feedback text messages on individual neurophysiological responses. Galvanic skin responses (GSR) and electromyography (EMG) were the primary neurophysiological methods used in which to test respondent reactions once exposed to the stimuli. Data using eye-tracking (ET) techniques were also recorded; however, results were reported using a descriptive approach.

On completion of the final data collection, a post-hoc focus group took place in order to provide further verification and interpretation of the results. Chapter six presents the final results from the data collection. An overall representation of the results was included accompanied by the results specific to the gender groups and the decision-making styles.

CHAPTER SIX

DATA ANALYSIS

6.1 INTRODUCTION

This study analysed the influence of text messages, or stimuli, on respondents' neurophysiological responses. Inferential statistics were used to analyse the raw neurophysiological data in order to address the proposed hypotheses that formed the basis of the study. An electronic observation method was used to collect the data to measure individual responses to a pre-determined set of stimuli by means of three neurophysiological measures.

6.2 DESCRIPTIVE STATISTICS

Descriptive statistics were used to illustrate the demographic data such as gender by means of frequency tables. No other demographic data were required, however, decision-basis questions regarding, respondents' attitudes towards non-profit organisations and their familiarity with these organisations were asked as part of a pre-test questionnaire. Cross tabulations of the results were calculated with the intention of providing a more in-depth interpretation and understanding of the empirical results.

6.2.1 Gender distribution and decision-making styles

The respondents were asked to indicate their gender whilst completing the pre-test questionnaire. They were also requested to indicate their decision-making styles, namely whether they believed they made decisions based on emotional thinking, or whether they made decisions based on rational thinking. An experiment by Shiv and Fedorikhin (1999) made use of a number of scale items that required respondents to indicate their choice on a seven-point scale. A cross-tabulation presentation of the demographic data is presented in Table 6.1.

Table 6.1: Gender distribution overall and by decision-making styles

Gender	Total number of respondents	Percentage (%) of total	Rational decision-makers	Percentage (%) of total	Emotional decision-makers	Percentage (%) of total
Male	46	51	22	57	15	37
Female	44	49	17	43	25	63
Total	**90**	**100**	**39**	**100**	**40**	**100**

Table 6.1 illustrates that more male respondents believed that they made decisions based on rational decision-making than emotional decision-making. In contrast, female respondents believed that they made their decisions based on emotional decision-making rather than rational decision-making. These inferences are important in interpreting and analysing the results.

6.2.2 Familiarity distribution

An analysis of the level of familiarity of the respondents with the non-profit organisations was assessed. A difference in the compared results between non-profit one (NPO one) and non-profit two (NPO two) can be interpreted considering the familiarity status of the respondents towards the non-profit organisation. The results are shown in Table 6.2.

Table 6.2: Familiarity with non-profit organisation pre-test results

	Familiarity with Cheetah Outreach (NPO one)	**Percentage (%) of total**	**Familiarity with Reach for a Dream (NPO two)**	**Percentage (%) of total**
Familiar	32	36	53	59
Unfamiliar	58	64	37	41
Total	**90**	**100**	**90**	**100**

Table 6.2 indicates that the respondents were more unfamiliar with *Cheetah Outreach* than with *Reach for a Dream*.

Table 6.3: Familiarity by gender distribution

	Familiarity with Cheetah Outreach (NPO one)		**Percentage (%) of total**		**Familiarity with Reach for a Dream (NPO two)**		**Percentage (%) of total**	
	Male	Female	Male	Female	Male	Female	Male	Female
Familiar	18	14	39	32	25	28	54	64
Unfamiliar	28	30	61	68	21	16	46	36
Total	**46**	**44**	**100**	**100**	**46**	**44**	**100**	**100**

Table 6.3 shows that male respondents were more familiar with *Cheetah Outreach* than female respondents. Female respondents, on the other hand, were more familiar with *Reach for a Dream* than their male counterparts.

Table 6.4: Familiarity by decision-basis

	Familiarity with Cheetah Outreach (NPO one)		**Percentage (%) of total**		**Familiarity with Reach for a Dream (NPO two)**		**Percentage (%) of total**	
	Rational decision-makers	Emotional decision-makers	Rational decision-makers	Emotional decision-makers	Rational decision-makers	Emotional decision-makers	Rational decision-makers	Emotional decision-makers
Familiar	17	7	44	18	25	22	64	55
Unfamiliar	22	33	56	82	14	18	36	45
Total	**39**	**40**	**100**	**100**	**39**	**40**	**100**	**100**

Table 6.4 indicates that respondents who believed that they made decisions based on rational decision-making were more familiar with both *Cheetah Outreach* and *Reach for a Dream* than were those respondents who believed they made decisions based on emotions.

6.2.3 Attitudes towards charitable organisations and helping others distribution

The attitudes towards helping others and the attitudes towards charitable organisations were measured by asking respondents to respond to nine statements using a seven-point Likert-scale. A

cross-tabulation of the respondents' attitudes by gender and by decision-basis is included in Table 6.5 and Table 6.6.

Table 6.5: Attitudes towards charitable organisations and helping others distribution

	Attitudes towards helping others	Percentage (%) of total	Attitudes towards charitable organisations	Percentage (%) of total
Positive attitude	87	97	84	93
Negative attitude	3	3	6	7
Total	**90**	**100**	**90**	**100**

Table 6.5 shows that the vast majority of respondents strongly agreed with the nine statements regarding their attitudes towards helping others and their attitudes towards charitable organisations. The scale items can be viewed in Addendum F.

Table 6.6: Attitudes towards helping others and charitable organisations by gender distribution

	Attitudes towards helping others		Percentage (%) of total		Attitudes towards charitable organisations		Percentage (%) of total	
	Male	Female	Male	Female	Male	Female	Male	Female
Positive attitude	44	43	96	98	42	42	91	96
Negative attitude	2	1	4	2	4	2	9	4
Total	**46**	**44**	**100**	**100**	**46**	**44**	**100**	**100**

As can be seen in Table 6.6, the majority of both male and female respondents reported positive attitudes towards helping others and charitable organisations.

Table 6.7: Attitudes towards helping others and charitable organisations by decision-basis distribution

	Attitudes towards helping others		Percentage (%) of total		Attitudes towards charitable organisations		Percentage (%) of total	
	Rational decision-makers	Emotional decision-makers	Rational decision-makers	Emotional decision-makers	Rational decision-makers	Emotional decision-makers	Rational decision-makers	Emotional decision-makers
Positive attitude	37	39	95	98	34	39	97	98
Negative attitude	2	1	5	2	5	1	3	2
Total	**39**	**40**	**100**	**100**	**39**	**40**	**100**	**100**

Table 6.7 distinguishes between respondents who are rational decision-makers and those who are emotional decision-makers, and their attitudes towards helping others and charitable organisations. The results indicate that both groups of respondents showed positive attitudes towards helping others and charitable organisations.

The pre-test results should be kept in mind when considering the final results, apart from the interpretation of the data, which will be discussed in the next chapter.

6.3 ANALYSIS OF PARAMETRIC RESULTS

Results reflecting the skin conductance (measured by GSR), facial muscle activity (measured by EMG) and eye-tracking (measured by ET technology) are presented in tabular format in Table 6.8. As discussed in the previous chapter, the GSR and EMG measures were relative to a baseline measure that differed for each respondent and that were recorded prior to exposure to the stimuli. Heat maps were used to analyse the eye-tracking results in a descriptive format. As a consequence of the advantage of millisecond-by-millisecond data collection using these neurophysiological measurements, the data for each text message could be analysed.

The results are presented according to overall responses, responses by gender and responses by decision-basis. The neurophysiological scores for each respondent group for each text message are reported. Within non-profit group text comparisons and within respondent group comparisons are discussed. All hypotheses (and the expanded hypotheses) are listed in Addendum H.

6.3.1 Galvanic skin response text message results: NPO One (Cheetah Outreach)

Table 6.8 shows the galvanic skin response (GSR) scores for the full sample of 45 respondents in NPO one (*Cheetah Outreach*). The GSR scores show a significant deviation from the baseline after exposure to the stimuli, with the results and conclusions being consistent for all ten text messages of NPO one (*Cheetah Outreach*). The null hypothesis H_1 suggests that neurophysiological measures for GSR do not differ from the baseline in text one to text ten in the case of NPO one.

Table 6.8: GSR measurements for NPO one (Cheetah Outreach)

CO NPO one	Messages	GSR	t	df	p	Conclusion
Text 1	Thank you for your donation!	3.20	3.84	43	p < 0.001	Significant difference from baseline
Text 2	**Thank you for donating to Cheetah Outreach!**	**3.55**	**3.63**	**43**	**p < 0.001**	**Significant difference from baseline**
Text 3	Thank you for your generous donation to Cheetah Outreach. We value your support – it really makes a difference!	2.02	3.24	43	p < 0.01	Significant difference from baseline
Text 4	Thank you for donating R500 to Cheetah Outreach!	2.58	3.17	43	p < 0.01	Significant difference from baseline
Text 5	Thanks to your donation we have managed to raise R250 000 for Cheetah Outreach. Thank you for making a difference!	2.59	3.86	43	p < 0.001	Significant difference from baseline
Text 6	**Your donation has helped us to save 150 cheetahs in the past 12 months!**	**3.43**	**3.74**	**43**	**p < 0.001**	**Significant difference from baseline**

Text 7	Dear supporter, thank you for your donation to Cheetah Outreach!	2.10	3.45	43	$p < 0.001$	Significant difference from baseline
Text 8	Dear kind supporter, thank you for your donation to Cheetah Outreach!	2.25	3.29	43	$p < 0.01$	Significant difference from baseline
Text 9	Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'	2.69	3.74	43	$p < 0.001$	Significant difference from baseline
Text 10	Your donation has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Sheperd Dog Programme in support of protecting the wild Cheetah.	2.33	2.57	43	$p < 0.05$	Significant difference from baseline

A significant deviation for each text message is shown in Table 6.8 thus indicating significant arousal from the respondents. Text two (GSR = 3.55) and text six (GSR = 3.43) indicated in bold, reported the highest GSR scores, thus showing stronger levels of arousal. Therefore, the GSR results suggest the rejection of hypotheses H_{101a}, H_{102a}, H_{103a}, H_{104a}, H_{105a}, H_{106a}, H_{107a}, H_{108a}, H_{109a}, H_{110a} in the case of NPO one. The hypotheses can be viewed in Addendum H.

6.3.1.1 GSR results for NPO one (Cheetah Outreach): Males

Table 6.9 shows the GSR scores for the sample of male respondents in group one (the full sample of 46 respondents). The respondents were exposed to all ten text messages of NPO one. The GSR scores show a significant deviation from the baseline for all ten text messages after exposure to the text messages. The null hypothesis H_3 suggests that gender neurophysiological measures for GSR do not differ from the baseline in text one to text ten in the case of male respondents in NPO one.

Table 6.9: GSR measurements for NPO one (Cheetah Outreach): Males

CO NPO one	Messages	GSR	t	df	p	Conclusion
Text 1	Thank you for your donation!	4.01	2.95	21	$p < 0.01$	Significant difference from baseline
Text 2	**Thank you for donating to Cheetah Outreach!**	**4.37**	**3.03**	**21**	**$p < 0.01$**	**Significant difference from baseline**
Text 3	Thank you for your generous donation to Cheetah Outreach. We value your support – it really makes a difference!	2.90	2.80	21	$p < 0.01$	Significant difference from baseline
Text 4	Thank you for donating R500 to Cheetah Outreach!	3.73	2.66	21	$p < 0.01$	Significant difference from baseline
Text 5	Thanks to your donation we have managed to raise R250 000 for Cheetah Outreach. Thank you for making a difference!	3.64	3.44	21	$p < 0.001$	Significant difference from baseline
Text 6	**Your donation has helped us to save 150 cheetahs in the past 12 months!**	**4.02**	**2.89**	**21**	**$p < 0.01$**	**Significant difference from baseline**

Text 7	Dear supporter, thank you for your donation to Cheetah Outreach!	2.76	2.99	21	$p < 0.01$	Significant difference from baseline
Text 8	Dear kind supporter, thank you for your donation to Cheetah Outreach!	3.07	2.77	21	$p < 0.01$	Significant difference from baseline
Text 9	Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'	2.61	2.44	21	$p < 0.05$	Significant difference from baseline
Text 10	Your donation has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Sheperd Dog Programme in support of protecting the wild Cheetah.	3.70	2.23	21	$p < 0.05$	Significant difference from baseline

A significant deviation for each text message is shown in Table 6.9 thus indicating significant arousal. Text two (GSR = 4.37) and text six (GSR = 4.02) indicate the highest GSR scores thus pointing to stronger levels of arousal. Therefore, the GSR results support the rejection of H_{301a}, H_{303a}, H_{305a}, H_{307a}, H_{309a}, H_{311a}, H_{313a}, H_{315a}, H_{317a}, H_{319a} in the case of NPO one in the male gender group.

6.3.1.2 GSR results for NPO one (Cheetah Outreach): Females

Table 6.10 shows the GSR scores for the sample of female respondents in NPO one (the full sample of 44 respondents). The respondents were exposed to all ten text messages of NPO one. The GSR scores show significant deviations from the baseline for text one, text two, text five, text six and text nine. The null hypothesis H_3 suggests that gender neurophysiological measures for GSR do not differ from the baseline in text one to text ten in the case of female respondents in NPO one.

Table 6.10: GSR measurements for NPO one (Cheetah Outreach): Females

CO NPO one	**Messages**	**t**	**df**	**p**	**t**	**Conclusion**
Text 1	**Thank you for your donation!**	**2.39**	**2.49**	**21**	**$p < 0.05$**	**Significant difference from baseline**
Text 2	**Thank you for donating to Cheetah Outreach!**	**2.72**	**2.05**	**21**	**$p < 0.05$**	**Significant difference from baseline**
Text 3	Thank you for your generous donation to Cheetah Outreach. We value your support – it really makes a difference!	1.15	1.71	21	$p > 0.05$	No significant difference from baseline
Text 4	Thank you for donating R500 to Cheetah Outreach!	1.44	1.82	21	$p > 0.05$	No significant difference from baseline
Text 5	**Thanks to your donation we have managed to raise R250 000 for Cheetah Outreach. Thank you for making a difference!**	**1.54**	**1.96**	**21**	**$p < 0.05$**	**Significant difference from baseline**
Text 6	**Your donation has helped us to save 150 cheetahs in the past 12 months!**	**2.84**	**2.34**	**21**	**$p < 0.05$**	**Significant difference from baseline**

Text 7	Dear supporter, thank you for your donation to Cheetah Outreach!	1.44	1.82	21	p > 0.05	No significant difference from baseline
Text 8	Dear kind supporter, thank you for your donation to Cheetah Outreach!	1.44	1.82	21	p > 0.05	No significant difference from baseline
Text 9	**Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'**	**2.78**	**2.80**	**21**	**p < 0.01**	**Significant difference from baseline**
Text 10	Your donation has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Sheperd Dog Programme in support of protecting the wild Cheetah.	0.96	1.45	21	p > 0.05	No significant difference from baseline

A significant deviation for five of the ten text messages, shown in bold in Table 6.10 indicates significant arousal: Text one (GSR = 2.39), text two (GSR = 2.72), text five (GSR = 1.54), text six (GSR = 2.84) and text nine (GSR = 2.78) indicate statistically significant deviations from the baseline. Text six and text nine have the highest GSR scores thus showing the strongest levels of arousal in the female group. Therefore, the GSR results support the rejection of hypotheses H_{302a}, H_{304a}, $H_{310a,}$ H_{312a} and H_{318a} in the case of NPO one for the female group.

6.3.1.3 GSR results for NPO one (Cheetah Outreach): Rational decision-makers

Table 6.11 shows the GSR scores for the sample of respondents in NPO one who believed they made most of their decisions based on rational thinking (full sample of 39 respondents). The respondents were exposed to all ten text messages of NPO one. The GSR scores show significant deviations from the baseline for all ten text messages. The null hypothesis H_6 suggests that decision-basis neurophysiological measures for GSR do not differ from the baseline in text one to text ten amongst the rational decision-makers in NPO one.

Table 6.11: GSR measurements for NPO one (Cheetah Outreach): Rational decision-makers

CO NPO one	Messages	GSR	t	df	p	Conclusion
Text 1	Thank you for your donation!	2.28	2.45	23	p < 0.05	Significant difference from baseline
Text 2	Thank you for donating to Cheetah Outreach!	2.59	2.32	23	p < 0.05	Significant difference from baseline
Text 3	Thank you for your generous donation to Cheetah Outreach. We value your support – it really makes a difference!	1.46	2.04	23	p < 0.05	Significant difference from baseline
Text 4	Thank you for donating R500 to Cheetah Outreach!	2.66	2.77	23	p < 0.01	Significant difference from baseline
Text 5	Thanks to your donation we have managed to raise R250 000 for Cheetah Outreach. Thank you for making a difference!	1.58	2.13	23	p < 0.05	Significant difference from baseline

Text 6	**Your donation has helped us to save 150 cheetahs in the past 12 months!**	**2.93**	**2.68**	**23**	**p < 0.01**	**Significant difference from baseline**
Text 7	Dear supporter, thank you for your donation to Cheetah Outreach!	2.53	2.95	23	p < 0.05	Significant difference from baseline
Text 8	Dear kind supporter, thank you for your donation to Cheetah Outreach!	1.94	2.11	23	p < 0.05	Significant difference from baseline
Text 9	**Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'**	**2.75**	**2.71**	**23**	**p < 0.01**	**Significant difference from baseline**
Text 10	Your donation has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Shepherd Dog Programme in support of protecting the wild Cheetah	2.02	2.42	23	p < 0.05	Significant difference from baseline

A significant deviation for each text message is shown in bold in Table 6.11, indicating significant arousal. Text six (GSR = 2.93) and text nine (GSR = 2.75) have the highest GSR scores pointing to the strongest levels of arousal. Therefore, the GSR results suggest the rejection of hypotheses H_{601a}, H_{603a}, H_{605a}, H_{607a}, H_{609a}, H_{611a}, H_{613a}, H_{615a}, H_{617a}, H_{619a} in the case of NPO one amongst rational decision-makers.

6.3.1.4 GSR results for NPO one (Cheetah Outreach): Emotional decision-makers

Table 6.12 shows the GSR scores for the sample of respondents in NPO one who believed they made most of their decisions based on emotional thinking (full sample of 40 respondents). The respondents were exposed to all ten text messages of NPO one. The GSR scores show a significant deviation from the baseline for the majority of the messages after exposure to the stimuli, except for text four, text seven and text ten. The null hypothesis of H_6 suggests that decision-basis neurophysiological measures for GSR do not differ from the baseline in text one to text ten amongst emotional decision-makers in NPO one.

Table 6.12: GSR measurements for NPO one (Cheetah Outreach): Emotional decision-makers

CO NPO one	Messages	GSR	t	df	p	Conclusion
Text 1	**Thank you for your donation!**	**4.32**	**2.99**	**19**	**p < 0.01**	**Significant difference from baseline**
Text 2	**Thank you for donating to Cheetah Outreach!**	**4.69**	**2.80**	**19**	**p < 0.01**	**Significant difference from baseline**
Text 3	**Thank you for your generous donation to Cheetah Outreach. We value your support – it really makes a difference!**	**2.70**	**2.51**	**19**	**p < 0.05**	**Significant difference from baseline**

Text 4	Thank you for donating R500 to Cheetah Outreach!	2.49	1.78	19	p > 0.05	No Significant difference from baseline
Text 5	**Thanks to your donation we have managed to raise R250 000 for Cheetah Outreach. Thank you for making a difference!**	**3.80**	**3.34**	**19**	**p < 0.001**	**Significant difference from baseline**
Text 6	**Your donation has helped us to save 150 cheetahs in the past 12 months!**	**4.03**	**2.59**	**19**	**p < 0.01**	**Significant difference from baseline**
Text 7	Dear supporter, thank you for your donation to Cheetah Outreach!	1.58	1.83	19	p > 0.05	No significant difference from baseline
Text 8	**Dear kind supporter, thank you for your donation to Cheetah Outreach!**	**2.63**	**2.52**	**19**	**p < 0.05**	**Significant difference from baseline**
Text 9	**Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'**	**2.63**	**2.52**	**19**	**p < 0.05**	**Significant difference from baseline**
Text 10	Your donation has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Sheperd Dog Programme in support of protecting the wild Cheetah.	2.70	1.54	19	p > 0.05	No significant difference from baseline

A significant deviation for each text message is shown in Table 6.12, indicating significant arousal. These texts are indicated in bold. Text two (GSR = 4.69) and text one (GSR = 4.32) have the highest GSR scores thus showing the strongest levels of arousal. Therefore, the GSR results support the rejection of hypotheses H_{602a}, H_{604a}, H_{606a}, H_{610a}, H_{612a}, H_{616a}, and H_{620a} in the case of NPO one amongst emotional decision-makers.

6.3.1.5 GSR comparisons in NPO one (Cheetah Outreach)

The GSR scores of each text message between text one and text ten were compared in the case of NPO one. The detailed results are presented in Addendum I. There were no significant differences between the GSR scores for text one in comparison to the GSR scores for all other text messages. The null hypothesis H_2 suggests that neurophysiological measures for GSR do not differ from each other in text one to text ten in the case of NPO one. The GSR results support hypotheses H_{201a}, H_{202a}, H_{203a}, H_{204a}, H_{205a}, H_{206a}, H_{207a}, H_{208a}, H_{209a}, H_{210a} in NPO one.

6.3.1.6 GSR comparisons in NPO one (Cheetah Outreach): Males

The null hypothesis H_5 suggests that neurophysiological GSR measures for text one to text ten do not differ from each other in the gender groups. There were no significant differences when comparisons of the GSR results were made in the male respondent group of NPO one. The GSR results thus support hypotheses H_{501a}, H_{503a}, H_{505a}, H_{507a}, H_{509a}, H_{511a}, H_{513a}, H_{515a}, H_{517a}, H_{519a} in the case of NPO one amongst male respondents.

6.3.1.7 GSR comparisons in NPO one (Cheetah Outreach): Females

The null hypothesis H_5 suggests that neurophysiological GSR measures for text one to text ten do not differ from each other in the gender groups. There were no significant differences when comparisons of the GSR results were made in the female respondent group of NPO one. The GSR results support hypotheses H_{502a}, H_{504a}, H_{506a}, H_{508a}, H_{510a}, H_{512a}, H_{514a}, H_{516a}, H_{518a}, H_{520a} in NPO one amongst female respondents.

6.3.1.8 GSR comparisons in NPO one (Cheetah Outreach): Males and females

A comparison of male and female respondents' GSR scores were measured and recorded after exposure to text messages of NPO one. The results are presented in Table 6.13. The null hypothesis H_4 suggests that gender neurophysiological GSR measures for text one to text ten do not differ from each other.

Table 6.13: GSR comparisons within NPO one (Cheetah Outreach): Males and females

CO NPO one	Messages	GSR males	GSR females	t	df	p	Conclusion
Text 1	Thank you for your donation!	4.01	2.39	-0.97	42	p > 0.05	No significant difference
Text 2	Thank you for donating to Cheetah Outreach!	4.37	2.72	-0.84	42	p > 0.05	No significant difference
Text 3	Thank you for your generous donation to Cheetah Outreach. We value your support – it really makes a difference!	2.90	1.15	-1.41	42	p > 0.05	No significant difference
Text 4	Thank you for donating R500 to Cheetah Outreach!	3.73	1.44	-1.43	42	p > 0.05	No significant difference
Text 5	Thanks to your donation we have managed to raise R250 000 for Cheetah Outreach. Thank you for making a difference!	3.64	1.54	-1.59	42	p > 0.05	No significant difference
Text 6	Your donation has helped us to save 150 cheetahs in the past 12 months!	4.02	2.84	-0.64	42	p > 0.05	No significant difference
Text 7	Dear supporter, thank you for your donation to Cheetah Outreach!	2.76	1.44	-1.09	42	p > 0.05	No significant difference
Text 8	Dear kind supporter, thank you for your donation to Cheetah Outreach!	3.07	1.44	-1.20	42	p > 0.05	No significant difference
Text 9	Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'	2.61	2.78	0.12	42	p > 0.05	No significant difference
Text 10	Your donation has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Sheperd Dog Programme in support of protecting the wild Cheetah.	3.70	0.96	-1.54	42	p > 0.05	No significant difference

There were no significant differences for any text message when the GSR scores for males and females were compared. Therefore, the GSR results support hypotheses H_{401a}, H_{402a}, H_{403a}, H_{404a}, H_{405a}, H_{406a}, H_{407a}, H_{408a}, H_{409a}, H_{410a} in the case of NPO one.

6.3.1.9 GSR comparisons in NPO one (Cheetah Outreach): Rational decision-makers

The null hypothesis H_8 suggests that neurophysiological GSR measures for text one to ten do not differ from each other in the decision-basis groups. There were no significant differences for each text message when comparisons of the GSR results in NPO one were made amongst rational decision-makers. The GSR results support hypotheses H_{801a}, H_{803a}, H_{805a}, H_{807a}, H_{809a}, H_{811a}, H_{813a}, H_{815a}, H_{817a}, H_{819a} in the case of NPO one.

6.3.1.10 GSR comparisons in NPO one (Cheetah Outreach): Emotional decision-makers

The null hypothesis H_8 suggests that neurophysiological GSR measures for text one to text ten do not differ from each other in the decision-basis groups. There were no significant differences when comparisons of the GSR results were made amongst emotional decision-makers. The GSR results support hypotheses H_{802a}, H_{804a}, H_{806a}, H_{808a}, H_{810a}, H_{812a}, H_{814a}, H_{816a}, H_{818a}, H_{820a} in the case of NPO one.

6.3.1.11 GSR comparisons in NPO One (Cheetah Outreach): Rational versus emotional decision-makers

A comparison of emotional versus rational decision-makers' GSR scores were measured and recorded following the exposure to text messages of NPO one. There were no significant differences when comparisons between the scores of emotional and rational decision-makers were made. The results are presented in Table 6.14. The null hypothesis H_7 suggests that decision-basis neurophysiological GSR measures for text one to text ten do not differ from each other.

Table 6.14: GSR comparisons in NPO one (Cheetah Outreach): Rational versus emotional decision-makers

CO NPO one	Messages	GSR emotional	GSR rational	t	df	p	Conclusion
Text 1	Thank you for your donation!	4.32	2.28	1.23	42	p > 0.05	No significant difference
Text 2	Thank you for donating to Cheetah Outreach!	4.69	2.59	1.07	42	p > 0.05	No significant difference
Text 3	Thank you for your generous donation to Cheetah Outreach. We value your support – it really makes a difference!	2.70	1.46	0.99	42	p > 0.05	No significant difference
Text 4	Thank you for donating R500 to Cheetah Outreach!	2.49	2.66	-0.10	42	p > 0.05	No significant difference

Text 5	Thanks to your donation we have managed to raise R250 000 for Cheetah Outreach. Thank you for making a difference!	3.80	1.58	1.68	42	p > 0.05	No significant difference
Text 6	Your donation has helped us to save 150 cheetahs in the past 12 months!	4.03	2.93	0.59	42	p > 0.05	No significant difference
Text 7	Dear supporter, thank you for your donation to Cheetah Outreach!	1.58	2.53	-0.77	42	p > 0.05	No significant difference
Text 8	Dear kind supporter, thank you for your donation to Cheetah Outreach!	2.63	1.94	0.50	42	p > 0.05	No significant difference
Text 9	Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'	2.63	2.75	-0.08	42	p > 0.05	No significant difference
Text 10	Your donation has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Sheperd Dog Programme in support of protecting the wild Cheetah.	2.70	2.02	0.37	42	p > 0.05	No significant difference

There were no significant differences for each text message when the GSR scores of rational and emotional decision-makers were compared. Therefore, the GSR results support hypotheses H_{701a}, H_{702a}, H_{703a}, H_{704a}, H_{705a}, H_{706a}, H_{707a}, H_{708a}, H_{709a}, H_{710a} in NPO one.

6.3.2 GSR text messages results: NPO two (Reach for a Dream)

Table 6.15 shows the GSR scores for the sample of respondents in NPO two (the full sample of 45 respondents). The GSR scores show a significant deviation from the baseline after exposure to the stimuli. The result was consistent in the cases of all ten text messages in NPO two (Reach for a Dream). Therefore, the null hypothesis H_1 suggests that neurophysiological measures for GSR do not differ from the baseline in text one to text ten in the case of NPO two.

Table 6.15: GSR measurements: NPO two (Reach for a Dream)

RFDRM NPO two	Messages	GSR	t	df	p	Conclusion
Text 1	Thank you for your donation!	2.13	2.82	41	p < 0.05	Significant difference from baseline
Text 2	Thank you for donating to Reach For A Dream!	2.42	2.88	41	p < 0.05	Significant difference from baseline
Text 3	**Thank you for your generous donation to Reach for a Dream. We value your support – it really makes a difference!**	**2.95**	**3.39**	**41**	**p < 0.001**	**Significant difference from baseline**
Text 4	Thank you for donating R500 to Reach for a Dream	2.07	3.09	41	p < 0.05	Significant difference from baseline

Text 5	**Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!**	**2.93**	**3.78**	**41**	**p < 0.001**	**Significant difference from baseline**
Text 6	Your donation has helped us to support 16 520 children in the past 12 months!	1.82	2.98	41	p < 0.05	Significant difference from baseline
Text 7	Dear supporter, thank you for your donation to Reach for a Dream!	1.03	2.13	41	p < 0.05	Significant difference from baseline
Text 8	Dear kind supporter, thank you for your donation to Reach for a Dream!	2.38	3.49	41	p < 0.001	Significant difference from baseline
Text 9	Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'	1.75	2.86	41	p < 0.05	Significant difference from baseline
Text 10	Your donation has contributed towards helping Reach for a Dream continue giving hope to children fighting life-threatening illnesses.	2.17	3.32	41	p < 0.001	Significant difference from baseline

A significant deviation for each text message is in Table 6.15, thus indicating significant arousal. Text three (GSR = 2.95) and text five (GSR = 2.93) show higher GSR scores as shown in bold, thus illustrating stronger levels of arousal. Therefore, the GSR results suggest the rejection of hypotheses H_{101a}, H_{102a}, H_{103a}, H_{104a}, H_{105a}, H_{106a}, H_{107a}, H_{108a}, H_{109a}, H_{110a} in the case of NPO two.

6.3.2.1 GSR results for NPO two (Reach for a Dream): Males

Table 6.16 shows the GSR scores for the sample of male respondents in NPO two (full sample of 46 respondents). Respondents were exposed to the ten text messages of NPO two. The GSR scores show significant deviations from the baseline after exposure to the text messages, except for text six, text seven and text nine. Therefore, the null hypothesis H_3 suggests that gender neurophysiological measures for GSR do not differ from the baseline in text one to text ten in the case of male respondents in NPO two.

Table 6.16: GSR measurements for NPO two (Reach for a Dream): Males

RFDRM NPO two	Messages	GSR	t	df	p	Conclusion
Text 1	**Thank you for your donation!**	**2.56**	**2.40**	**22**	**p < 0.05**	**Significant difference from baseline**
Text 2	**Thank you for donating to Reach For A Dream!**	**1.83**	**2.15**	**22**	**p < 0.05**	**Significant difference from baseline**
Text 3	**Thank you for your generous donation to Reach for a Dream. We value your support – it really makes a difference!**	**4.00**	**2.90**	**22**	**p < 0.01**	**Significant difference from baseline**

Text 4	**Thank you for donating R500 to Reach for a Dream**	**2.75**	**2.79**	**22**	**p < 0.01**	**Significant difference from baseline**
Text 5	**Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!**	**1.83**	**2.15**	**22**	**p < 0.05**	**Significant difference from baseline**
Text 6	Your donation has helped us to support 16 520 children in the past 12 months!	1.50	1.98	22	p > 0.05	No significant difference from baseline
Text 7	Dear supporter, thank you for your donation to Reach for a Dream!	1.37	1.82	22	p > 0.05	No significant difference from baseline
Text 8	**Dear kind supporter, thank you for your donation to Reach for a Dream!**	**2.92**	**2.99**	**22**	**p < 0.01**	**Significant difference from baseline**
Text 9	Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'	1.37	1.82	22	p > 0.05	No significant difference from baseline
Text 10	**Your donation has contributed towards helping Reach for a Dream continue giving hope to children fighting life-threatening illnesses.**	**2.75**	**2.79**	**22**	**p < 0.01**	**Significant difference from baseline**

A significant deviation for each text message is shown in bold in Table 6.16 thus indicating significant arousal, except for text six, text seven and text nine. Text three (GSR = 4.00) and text eight (GSR = 2.92) indicate the highest GSR scores, thus showing stronger levels of arousal. Therefore, the GSR results support the rejection of hypotheses H_{301a}, H_{303a}, H_{305a}, H_{307a}, H_{309a}, H_{315a}, and H_{319a} in the case of NPO two in the male gender group.

6.3.2.2 GSR results for NPO two (Reach for a Dream): Females

Table 6.17 shows the GSR scores for the sample of female respondents in NPO two (full sample of 44 respondents). Respondents were exposed to all ten text messages of NPO two. The GSR scores do not show significant deviations from the baseline except for text two (GSR = 3.14), text five (GSR = 4.26), text six (GSR = 2.22) and text 9 (GSR = 2.22). Therefore, the null hypothesis H_3 suggests that gender neurophysiological measures for GSR do not differ from the baseline in text one to text ten in the case of male respondents in NPO two.

Table 6.17: GSR measurements for NPO two (Reach for a Dream): Females

RFDRM NPO two	Messages	GSR	t	df	p	Conclusion
Text 1	Thank you for your donation!	1.61	1.49	18	p > 0.05	No significant difference from baseline
Text 2	**Thank you for donating to Reach For A Dream!**	**3.14**	**2.01**	**18**	**p < 0.05**	**Significant difference from baseline**

Text 3	Thank you for your generous donation to Reach for a Dream. We value your support – it really makes a difference!	1.69	1.84	18	p > 0.05	No significant difference from baseline
Text 4	Thank you for donating R500 to Reach for a Dream	1.25	1.45	18	p > 0.05	No significant difference from baseline
Text 5	**Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!**	**4.26**	**3.19**	**18**	**p < 0.01**	**Significant difference from baseline**
Text 6	**Your donation has helped us to support 16 520 children in the past 12 months!**	**2.22**	**2.19**	**18**	**p < 0.05**	**Significant difference from baseline**
Text 7	Dear supporter, thank you for your donation to Reach for a Dream!	0.61	1.10	18	p > 0.05	No significant difference from baseline
Text 8	Dear kind supporter, thank you for your donation to Reach for a Dream!	1.72	1.83	18	p > 0.05	No significant difference from baseline
Text 9	**Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'**	**2.22**	**2.19**	**18**	**p < 0.05**	**Significant difference from baseline**
Text 10	Your donation has contributed towards helping Reach for a Dream continue giving hope to children fighting life-threatening illnesses.	1.48	1.80	18	p > 0.05	No significant difference from baseline

There were no significant deviations from the baseline for each text, except for text two, text five, text six and text nine as shown in bold in Table 6.17. Text five (GSR = 4.26) indicates the highest GSR scores, thus showing the strongest levels of arousal in the female group. Therefore, the GSR results support the rejection of hypotheses H_{304a}, H_{310a}, H_{312a} and H_{318a} in the case of NPO two in the female group.

6.3.2.3 GSR results for NPO two (Reach for a Dream): Rational decision-makers

Table 6.18 shows the GSR scores for the sample of respondents in NPO two who believed they made decisions based on rational thinking (full sample of 39 respondents). The respondents were exposed to all ten text messages of NPO two. The GSR scores show significant deviations from the baseline for all the text messages except for text seven and text nine. The null hypothesis H_6 suggests that decision-basis neurophysiological measures for GSR do not differ from the baseline in text one to text ten amongst the rational decision-makers in NPO two.

Table 6.18: GSR measurements for NPO two (Reach for a Dream): Rational decision-makers

RFDRM NPO two	Messages	GSR	t	df	p	Conclusion
Text 1	**Thank you for your donation!**	**2.64**	**2.49**	**22**	**p < 0.05**	**Significant difference from baseline**

Text 2	**Thank you for donating to Reach For A Dream!**	**3.05**	**2.26**	**22**	**p < 0.05**	**Significant difference from baseline**
Text 3	**Thank you for your generous donation to Reach for a Dream. We value your support – it really makes a difference!**	**4.00**	**2.90**	**22**	**p < 0.01**	**Significant difference from baseline**
Text 4	**Thank you for donating R500 to Reach for a Dream**	**2.86**	**2.77**	**22**	**p < 0.01**	**Significant difference from baseline**
Text 5	**Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!**	**2.85**	**2.78**	**22**	**p < 0.01**	**Significant difference from baseline**
Text 6	**Your donation has helped us to support 16 520 children in the past 12 months!**	**2.41**	**2.62**	**22**	**p < 0.05**	**Significant difference from baseline**
Text 7	Dear supporter, thank you for your donation to Reach for a Dream!	1.37	1.82	22	p > 0.05	No significant difference from baseline
Text 8	**Dear kind supporter, thank you for your donation to Reach for a Dream!**	**3.84**	**3.63**	**22**	**p < 0.01**	**Significant difference from baseline**
Text 9	Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'	1.37	1.82	22	p > 0.05	No significant difference from baseline
Text 10	**Your donation has contributed towards helping Reach for a Dream continue giving hope to children fighting life-threatening illnesses.**	**1.68**	**2.12**	**22**	**p < 0.05**	**Significant difference from baseline**

A significant deviation for each text message is shown in bold in Table 6.18, except for text seven and text nine. Text three (GSR = 4.00) and text eight (GSR = 3.84) indicate the highest GSR scores, thus showing the strongest levels of arousal. Therefore, the GSR results support the rejection of hypotheses H_{601a}, H_{603a}, H_{605a}, H_{607a}, H_{609a}, H_{611a}, H_{615a}, and H_{619a} in NPO two amongst rational decision-makers.

6.3.2.4 GSR results for NPO two (Reach for a Dream): Emotional decision-makers

Table 6.19 shows the GSR scores for the sample of respondents in NPO two who believed they made decisions based on emotional thinking (full sample of 40 respondents). The respondents were exposed to all ten text messages of NPO two. The GSR scores indicate that there are no significant deviations from the baseline for the ten text messages after exposure to the stimuli except for text five, text nine and text ten. The null hypothesis H_6 suggests that decision-basis neurophysiological measures for GSR do not differ from the baseline in text one to text ten amongst the emotional decision-makers in NPO two.

Table 6.19: GSR measurement for NPO two (Reach for a Dream): Emotional decision-makers

RFDRM NPO two	Messages	GSR	t	df	p	Conclusion
Text 1	Thank you for your donation!	1.52	1.40	18	p > 0.05	No significant difference from baseline
Text 2	Thank you for donating to Reach For A Dream!	1.66	1.84	18	p > 0.05	No significant difference from baseline
Text 3	Thank you for your generous donation to Reach for a Dream. We value your support – it really makes a difference!	1.69	1.84	18	p > 0.05	No significant difference from baseline
Text 4	Thank you for donating R500 to Reach for a Dream	1.11	1.46	18	p > 0.05	No significant difference from baseline
Text 5	**Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!**	**3.03**	**2.50**	**18**	**p < 0.05**	**Significant difference from baseline**
Text 6	Your donation has helped us to support 16 520 children in the past 12 months!	1.11	1.46	18	p > 0.05	No significant difference from baseline
Text 7	Dear supporter, thank you for your donation to Reach for a Dream!	0.61	1.10	18	p > 0.05	No significant difference from baseline
Text 8	Dear kind supporter, thank you for your donation to Reach for a Dream!	0.61	1.00	18	p > 0.05	No significant difference from baseline
Text 9	**Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'**	**2.22**	**2.19**	**18**	**p < 0.05**	**Significant difference from baseline**
Text 10	**Your donation has contributed towards helping Reach for a Dream continue giving hope to children fighting life-threatening illnesses.**	**2.77**	**2.54**	**18**	**p < 0.05**	**Significant difference from baseline**

As shown in Table 6.19, there are no significant deviations for each text message except for text five (GSR = 3.03), text nine (GSR = 2.22) and text ten (GSR = 2.77) amongst the emotional decision-makers in NPO two. Text five (GSR = 3.03) and text ten (GSR = 2.77) indicate the highest GSR scores, thus showing stronger levels of arousal. These results are shown in bold. Therefore, the GSR results suggest the rejection of hypotheses H_{810a}, H_{618a} and H_{620a} in NPO two amongst the emotional decision-makers.

6.3.2.5 GSR comparisons in NPO two (Reach for a Dream)

The GSR results for comparisons in text messages per non-profit group were measured and recorded in order to investigate the significant differences amongst the text messages. The results are discussed and presented in tabular format in Table 6.20. For ease of reading, only the text messages indicating significant differences have been included in Table 6.20.

The null hypothesis H_2 posits that neurophysiological measures for GSR do not differ from each other in text one to text ten in the case of NPO two. Table 6.20 suggests a statistically significant difference in the GSR response when comparing text messages of NPO two. There is also a significant difference between the GSR scores for text seven (GSR = 1.03) and text five (GSR = 2.93) of NPO two (t-value (82) = 2.08; $p < 0.05$). No other significant deviations were found.

Table 6.20: GSR comparisons in NPO two (Reach for a Dream)

Group text	Messages	GSR	Group text	Messages	GSR	t	df	p
RFDRM (2) Text 7	Dear supporter, thank you for your donation to Reach for a Dream!	1.03	RFDRM (2) Text 5	Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!	2.93	2.08	82	$p < 0.05$

In Table 6.20, text seven of NPO two (RFDRM) indicates a significant difference when compared with text five of NPO two. The GSR results suggest the rejection of hypotheses H_{205a} and H_{207a} in the case of NPO two.

6.3.2.6 GSR comparisons in NPO two (Reach for a Dream): Males

The null hypothesis H_5 suggests that neurophysiological GSR measures for text one to text ten do not differ from each other in the gender groups. There were no significant differences when comparing the GSR results among the male respondents in NPO two. The GSR results thus support hypotheses H_{501a}, H_{502a}, H_{503a}, H_{504a}, H_{505a}, H_{506a}, H_{507a}, H_{508a}, H_{509a}, H_{510a} in the case of NPO two.

6.3.2.7 GSR comparison in NPO two (Reach for a Dream): Females

The null hypothesis H_5 suggests that neurophysiological GSR measures for text one to text ten do not differ from each other in the gender groups. Table 6.21 indicates the significant differences when comparisons in NPO two are made. Table 6.21 also shows a statistically significant deviation between text five (GSR = 4.26) and text seven (GSR = 0.61) in NPO two (t-value (39) = 2.52; $p < 0.05$). No other significant deviations were found.

Table 6.21: GSR comparisons in NPO two (Reach for a Dream): Females

Group Text	Messages	GSR	Group Text	Messages	GSR	t	df	p
RFDRM (2) Text 7	Dear supporter, thank you for your donation to Reach for a Dream!	0.61	RFDRM (2) Text 5	Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!	4.26	2.52	39	$p < 0.05$

Table 6.21 indicates a significant difference between text five and text seven when compared in NPO two. A stronger arousal was detected among female respondents when exposed to text five

(GSR = 4.26) compared to text 7 (GSR = 0.61). The GSR results thus support the rejection of hypotheses H_{505a} and H_{507a} amongst females in the case of NPO two.

6.3.2.8 GSR comparisons in NPO two (Reach for a Dream): Males and females

A comparison of male and female respondents' GSR scores were measured and recorded after exposure to the text messages of NPO two. The null hypothesis H_4 suggests that gender neurophysiological GSR measures for text one to text ten do not differ from each other. There were no significant differences when the scores of males and females were compared. The results are presented in Table 6.22.

Table 6.22: GSR comparisons in NPO two (Reach for a Dream): Males and females

RFDRM NPO two	Messages	GSR males	GSR females	t	df	p	Conclusion
Text 1	Thank you for your donation!	2.56	1.61	-0.62	40	p > 0.05	No significant difference
Text 2	Thank you for donating to Reach For A Dream!	1.83	3.14	0.77	40	p > 0.05	No significant difference
Text 3	Thank you for your generous donation to Reach for a Dream. We value your support – it really makes a difference!	4.00	1.69	-1.33	40	p > 0.05	No significant difference
Text 4	Thank you for donating R500 to Reach for a Dream	2.75	1.25	-1.12	40	p > 0.05	No significant difference
Text 5	Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!	1.83	4.26	1.59	40	p > 0.05	No significant difference
Text 6	Your donation has helped us to support 16 520 children in the past 12 months!	1.50	2.22	0.58	40	p > 0.05	No significant difference
Text 7	Dear supporter, thank you for your donation to Reach for a Dream!	1.37	0.61	-0.78	40	p > 0.05	No significant difference
Text 8	Dear kind supporter, thank you for your donation to Reach for a Dream!	2.92	1.72	-0.87	40	p > 0.05	No significant difference
Text 9	Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'	1.37	2.22	0.68	40	p > 0.05	No significant difference
Text 10	Your donation has contributed towards helping Reach for a Dream continue giving hope to children fighting life-threatening illnesses.	2.75	1.48	-0.97	40	p > 0.05	No significant difference

The GSR results reported in Table 6.22 support hypotheses H_{401a}, H_{402a}, H_{403a}, H_{404a}, H_{405a}, H_{406a}, H_{407a}, H_{408a}, H_{409a}, H_{410a} in NPO two, when a comparison between the scores of male and female

respondents was made. No significant differences were found between male and female GSR scores for all text messages.

6.3.2.9 GSR comparisons in NPO two (Reach for a Dream): Rational decision-makers

The null hypothesis H_8 suggests that neurophysiological GSR measures for text one to text ten do not differ from each other in the decision-basis groups. There were no significant differences when comparisons of the GSR results in NPO two were made amongst rational decision-makers. The GSR results thus support hypotheses H_{801a}, H_{803a}, H_{805a}, H_{807a}, H_{809a}, H_{811a}, H_{813a}, H_{815a}, H_{817a}, H_{819a} in the case of NPO two.

6.3.2.10 GSR comparisons in NPO two (Reach for a Dream): Emotional decision-makers

The null hypothesis H_8 suggests that neurophysiological GSR measures for text one to text ten do not differ from each other in the decision-basis groups. There were no significant differences when comparisons of the GSR results in NPO two were made amongst emotional decision-makers. The GSR results support hypotheses H_{802a}, H_{804a}, H_{806a}, H_{808a}, H_{810a}, H_{812a}, H_{814a}, H_{1016a}, H_{818a}, H_{820a} in the case of NPO two.

6.3.2.11 GSR comparisons in NPO two (Reach for a Dream): Emotional and rational decision-makers

The null hypothesis H_7 suggests that decision-basis neurophysiological GSR measures for text one to text ten do not differ from each other. A comparison of emotional versus rational decision-makers' GSR scores were measured and recorded after exposure to text messages of NPO two. There were no significant differences between the scores of emotional and rational decision-makers, except for text eight (t-value (40) = -2.50; $p < 0.05$) as shown in bold. The results are presented in Table 6.23.

Table 6.23: GSR comparisons in NPO two (Reach for a Dream): Emotional and rational decision-makers

RFDRM NPO two	Messages	GSR emotional	GSR rational	t	df	p	Conclusion
Text 1	Thank you for your donation!	1.52	2.64	-0.73	40	p > 0.05	No significant difference
Text 2	Thank you for donating to Reach For A Dream!	1.66	3.05	-0.82	40	p > 0.05	No significant difference
Text 3	Thank you for your generous donation to Reach for a Dream. We value your support – it really makes a difference!	1.69	4.00	-1.33	40	p > 0.05	No significant difference
Text 4	Thank you for donating R500 to Reach for a Dream	1.11	2.86	-1.32	40	p > 0.05	No significant difference

Text 5	Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!	3.03	2.85	0.11	40	p > 0.05	No significant difference
Text 6	Your donation has helped us to support 16 520 children in the past 12 months!	1.11	2.41	-1.06	40	p > 0.05	No significant difference
Text 7	Dear supporter, thank you for your donation to Reach for a Dream!	0.61	1.37	-0.78	40	p > 0.05	No significant difference
Text 8	**Dear kind supporter, thank you for your donation to Reach for a Dream!**	**0.61**	**3.84**	**-2.50**	**40**	**p < 0.05**	**Significant difference**
Text 9	Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'	2.22	1.37	0.68	40	p > 0.05	No significant difference
Text 10	Your donation has contributed towards helping Reach for a Dream continue giving hope to children fighting life-threatening illnesses.	2.77	1.68	0.83	40	p > 0.05	No significant difference

In Table 6.23, the GSR results suggest the rejection of H_{708a} in NPO two when a comparison of the results between rational and emotional decision-makers was made.

6.3.2.12 Summary of GSR results

The GSR measures for the ten text messages of NPO one (Cheetah Outreach), and NPO two (Reach for a Dream), indicated arousal as a result of the GSR scores' deviation from the baseline. Text two and text six showed the strongest levels of arousal with reference to NPO one, whereas text three and text five indicated the strongest levels of arousal with reference to NPO two.

Males were more responsive than females towards the text messages in the case of NPO one, Cheetah Outreach and NPO two, Reach for a Dream. This result was indicated by a higher number of statistically significant deviations from the baseline amongst male respondents towards the text messages. A comparison between male and female GSR scores in the same NPO group did not indicate significant differences. This result was consistent for NPO one and NPO two for any of the ten text messages.

The GSR measures indicated significant differences between the text messages of NPO one and of NPO two individually. There were no significant differences in GSR scores between text messages of NPO one. It is clear that there was a significant difference between text seven (GSR = 1.03) in NPO two when compared to text five (GSR = 2.93) in NPO two, suggesting that the results were influenced by the different message elements. In NPO two there was a significant difference between rational decision-makers (GSR = 3.84) and emotional decision-makers (GSR = 0.61) in response to text eight. No other significant results were found.

6.3.3 EMG text messages results of NPO one (Cheetah Outreach)

Electromyography (EMG) measures voluntary and involuntary facial muscle movements reflecting conscious and subconscious emotions (Dimberg *et al.,* 2000). EMG results from respondents who were exposed to the text messages in NPO one (Cheetah Outreach) are discussed in tabular format and presented in Table 6.24. The results are reported overall, by gender (male and female) and by decision-basis (rational and emotional decision-makers). In addition, comparisons of the results per text message in the NPO groups, and comparisons by gender and by decision-basis are also provided.

6.3.3.1 EMG results for NPO one (Cheetah Outreach)

Table 6.24 shows the EMG scores for the sample of respondents who were exposed to the stimuli in NPO one (full sample of 45 respondents). The null hypothesis H_1 suggests that neurophysiological measures for EMG do not differ from the baseline in text one to text ten in the case of NPO one. The EMG scores do not show significant differences from the baseline, which implies a neutral response, except for text seven (EMG = -0.34; $p < 0.05$) as shown in bold. The EMG score is negative thus indicating a negative emotional response.

Table 6.24: EMG measurements for NPO one (Cheetah Outreach)

CO NPO one	Messages	EMG	t	df	p	Conclusion
Text 1	Thank you for your donation!	0.28	1.02	39	p > 0.05	Neutral response
Text 2	Thank you for donating to Cheetah Outreach!	-0.03	-0.30	36	p > 0.05	Neutral response
Text 3	Thank you for your generous donation to Cheetah Outreach. We value your support – it really makes a difference!	-0.14	-1.20	36	p > 0.05	Neutral response
Text 4	Thank you for donating R500 to Cheetah Outreach!	0.25	1.84	37	p > 0.05	Neutral response
Text 5	Thanks to your donation we have managed to raise R250 000 for Cheetah Outreach. Thank you for making a difference!	0.26	0.87	37	p > 0.05	Neutral response
Text 6	Your donation has helped us to save 150 cheetahs in the past 12 months!	0.03	0.15	39	p > 0.05	Neutral response
Text 7	**Dear supporter, thank you for your donation to Cheetah Outreach!**	**-0.34**	**-2.01**	**38**	**p < 0.05**	**Negative Emotion**

Text 8	Dear kind supporter, thank you for your donation to Cheetah Outreach!	0.19	1.04	40	p > 0.05	Neutral response
Text 9	Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'	-0.22	-1.77	37	p > 0.05	Neutral response
Text 10	Your donation has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Sheperd Dog Programme in support of protecting the wild Cheetah.	-0.08	-0.30	39	p > 0.05	Neutral response

As a result of the significant deviation from the baseline indicated by the EMG score (EMG = -0.34) in text seven, hypothesis H_{107b} in NPO one is rejected.

6.3.3.2 EMG results for NPO one (Cheetah Outreach): Males

Table 6.25 shows the EMG scores for the sample of male respondents in NPO one (full sample of 46 respondents). The respondents were exposed to all ten text messages of NPO one. The null hypothesis H_3 suggests that gender neurophysiological measures for EMG do not differ from the baseline in text one to text ten in the case of male respondents in NPO one. The EMG scores in Table 6.25 show that there are no statistically significant deviations from the baseline scores after exposure to the stimuli for the male group in NPO one, except for text ten (EMG = -0.55; t-value (20) = -2.17; $p < 0.05$) as shown in bold.

Table 6.25: EMG measurements for NPO one (Cheetah Outreach): Males

CO NPO one	Messages	EMG	t	df	p	Conclusion
Text 1	Thank you for your donation!	-0.44	-1.99	18	p > 0.05	Neutral response
Text 2	Thank you for donating to Cheetah Outreach!	0.03	0.20	19	p > 0.05	Neutral response
Text 3	Thank you for your generous donation to Cheetah Outreach. We value your support – it really makes a difference!	-0.11	-0.54	17	p > 0.05	Neutral response
Text 4	Thank you for donating R500 to Cheetah Outreach!	0.34	1.53	17	p > 0.05	Neutral response
Text 5	Thanks to your donation we have managed to raise R250 000 for Cheetah Outreach. Thank you for making a difference!	-0.10	-0.34	19	p > 0.05	Neutral response
Text 6	Your donation has helped us to save 150 cheetahs in the past 12 months!	-0.35	-0.99	19	p > 0.05	Neutral response
Text 7	Dear supporter, thank you for your donation to Cheetah Outreach!	-0.01	-0.05	18	p > 0.05	Neutral response

Text 8	Dear kind supporter, thank you for your donation to Cheetah Outreach!	-0.07	-0.23	20	p > 0.05	Neutral response
Text 9	Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'	-0.08	-0.44	17	p > 0.05	Neutral response
Text 10	**Your donation has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Sheperd Dog Programme in support of protecting the wild Cheetah.**	**-0.55**	**-2.17**	**20**	**p < 0.05**	**Negative emotion**

As can be seen in Table 6.25, there are no significant deviations from the baseline except for text ten (EMG = -0.55) thus indicating a negative emotion towards the stimulus. Therefore, the EMG results suggest the rejection of hypothesis H_{319b} in the case of NPO one for the male group.

6.3.3.3 EMG results for NPO one (Cheetah Outreach): Females

Table 6.26 illustrates the EMG scores for the sample of female respondents in NPO one (full sample of 44 respondents). The respondents were exposed to all ten text messages of NPO one. The null hypothesis H_3 suggests that gender neurophysiological measures for EMG do not differ from the baseline in text one to text ten in the case of female respondents in NPO one. The EMG scores do not show significant deviations from the baseline except for text one (EMG = 0.93; t-value (20) = 2.08; $p < 0.05$), text seven (EMG = -0.66; t-value (19) = -2,32; $p < 0.05$), text eight (EMG = 0.46; t-value (19) = 2.07; $p < 0.05$) and text nine (EMG = -0.35; t-value (19) = -2.05; $p < 0.05$). These significant deviations are indicated in bold in Table 6.26.

Table 6.26: EMG measurements for NPO one (Cheetah Outreach): Females

CO NPO one	Messages	EMG	t	df	p	Conclusion
Text 1	**Thank you for your donation!**	**0.93**	**2.08**	**20**	**p < 0.05**	**Positive emotion**
Text 2	Thank you for donating to Cheetah Outreach!	-0.11	-0.63	16	p > 0.05	Neutral response
Text 3	Thank you for your generous donation to Cheetah Outreach. We value your support – it really makes a difference!	-0.18	-1.23	18	p > 0.05	Neutral response
Text 4	Thank you for donating R500 to Cheetah Outreach!	0.17	1.02	19	p > 0.05	Neutral response
Text 5	Thanks to your donation we have managed to raise R250 000 for Cheetah Outreach. Thank you for making a difference!	0.66	1.27	17	p > 0.05	Neutral response
Text 6	Your donation has helped us to save 150 cheetahs in the past 12 months!	0.42	1.51	19	p > 0.05	Neutral response
Text 7	**Dear supporter, thank you for your donation to Cheetah Outreach!**	**-0.66**	**-2.32**	**19**	**p < 0.05**	**Negative emotion**
Text 8	**Dear kind supporter, thank you for your donation to Cheetah Outreach!**	**0.46**	**2.07**	**19**	**p < 0.05**	**Positive emotion**

Text 9	**Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'**	**-0.35**	**-2.05**	**19**	**p < 0.05**	**Negative emotion**
Text 10	Your donation has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Sheperd Dog Programme in support of protecting the wild Cheetah.	0.45	1.03	18	p > 0.05	Neutral response

Text one and text eight in Table 6.26 show positive EMG scores, thus indicating that the *zygmaticus major muscle* (smile) dominated the *corrugator supercilli muscle* (frown) amongst the female group. Text seven and text nine show negative EMG scores, indicating that the *corrugator supercilli muscle* was more active than the *zygmaticus major muscle*. Therefore, the EMG results support the rejection of hypotheses H_{302b}, H_{3014a}, H_{316b} and H_{318b} in the case of NPO one amongst females.

6.3.3.4 EMG results for NPO one (Cheetah Outreach): Rational decision-makers

Table 6.27 depicts the EMG scores for the rational decision-makers group in NPO one (full sample of 39 respondents). The respondents were exposed to all ten text messages of NPO one. The null hypothesis H_6 suggests that: decision-basis neurophysiological measures for EMG do not differ from the baseline in text one to text ten amongst the rational decision-makers in NPO one. The EMG scores do not show significant deviations from the baseline except for text four (EMG = 0.40; t-value (20) = 2.15; $p < 0.05$), indicated in bold in Table 6.27.

Table 6.27: EMG measurements for NPO One (Cheetah Outreach): Rational decision-makers

CO NPO one	Messages	EMG	t	df	p	Conclusion
Text 1	Thank you for your donation!	-0.12	-0.58	21	p > 0.05	Neutral response
Text 2	Thank you for donating to Cheetah Outreach!	-0.02	-0.11	20	p > 0.05	Neutral response
Text 3	Thank you for your generous donation to Cheetah Outreach. We value your support – it really makes a difference!	-0.32	-1.85	21	p > 0.05	Neutral response
Text 4	**Thank you for donating R500 to Cheetah Outreach!**	**0.40**	**2.15**	**20**	**p < 0.05**	**Positive Emotion**
Text 5	Thanks to your donation we have managed to raise R250 000 for Cheetah Outreach. Thank you for making a difference!	0.13	0.77	19	p > 0.05	Neutral response
Text 6	Your donation has helped us to save 150 cheetahs in the past 12 months!	0.26	1.04	22	p > 0.05	Neutral response
Text 7	Dear supporter, thank you for your donation to Cheetah Outreach!	-0.29	-1.87	21	p > 0.05	Neutral response
Text 8	Dear kind supporter, thank you for your donation to Cheetah Outreach!	0.24	0.84	22	p > 0.05	Neutral response

Text 9	Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'	-0.27	-1.60	20	p > 0.05	Neutral response
Text 10	Your donation has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Sheperd Dog Programme in support of protecting the wild Cheetah.	-0.41	-1.65	20	p > 0.05	Neutral response

Text four displays a positive EMG score, thus indicating that the *zygmaticus major muscle* (smile) dominated the *corrugator supercilli muscle* (frown) amongst rational decision-makers. Therefore, the EMG results support the rejection of hypothesis H_{607b} in the case of NPO one amongst rational decision-makers.

6.3.3.5 EMG results for NPO one (Cheetah Outreach): Emotional decision-makers

Table 6.28 illustrates the EMG scores for the emotional decision-makers in NPO one (full sample of 40 respondents). Respondents were exposed to all ten text messages of NPO one. The null hypothesis H_6 suggests that decision-basis neurophysiological measures for EMG do not differ from the baseline in text one to text ten amongst the emotional decision-makers in NPO one. The EMG scores show that there are no statistically significant deviations from the baseline after exposure to the stimuli amongst the emotional decision-makers.

Table 6.28: EMG measurements for NPO one (Cheetah Outreach): Emotional decision-makers

CO NPO one	Messages	EMG	t	df	p	Conclusion
Text 1	Thank you for your donation!	0.77	1.40	17	p > 0.05	Neutral response
Text 2	Thank you for donating to Cheetah Outreach!	-0.06	-0.32	15	p > 0.05	Neutral response
Text 3	Thank you for your generous donation to Cheetah Outreach. We value your support – it really makes a difference!	0.12	0.90	14	p > 0.05	Neutral response
Text 4	Thank you for donating R500 to Cheetah Outreach!	0.06	0.33	16	p > 0.05	Neutral response
Text 5	Thanks to your donation we have managed to raise R250 000 for Cheetah Outreach. Thank you for making a difference!	0.40	0.66	17	p > 0.05	Neutral response
Text 6	Your donation has helped us to save 150 cheetahs in the past 12 months!	-0.26	-0.61	16	p > 0.05	Neutral response
Text 7	Dear supporter, thank you for your donation to Cheetah Outreach!	-0.42	-1.21	16	p > 0.05	Neutral response
Text 8	Dear kind supporter, thank you for your donation to Cheetah Outreach!	0.12	0.62	17	p > 0.05	Neutral response
Text 9	Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'	-0.16	-0.84	16	p > 0.05	Neutral response

Text 10	Your donation has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Sheperd Dog Programme in support of protecting the wild Cheetah.	0.29	0.62	18	p > 0.05	Neutral response

As shown in Table 6.28, there are no significant deviations amongst the text messages, indicating neutral responses. Therefore, the EMG results support hypotheses H_{602b}, H_{604b}, H_{606b}, H_{608b}, H_{610b}, H_{612b}, H_{614b}, H_{616b}, H_{618b}, H_{620b} in the case of NPO one amongst emotional decision-makers.

6.3.3.6 EMG comparisons in NPO one (Cheetah Outreach)

The EMG results of each text message in NPO one were compared. The results are reported in tabular format in Table 6.29, showing the significant differences in EMG scores between text one to text ten.

The null hypothesis H_2 suggests that neurophysiological measures for EMG do not differ from each other in text one to text ten in the case of NPO one. Table 6.29 indicates a comparison of facial muscle activity between the text messages of NPO one. Comparisons of EMG measures do not illustrate significant differences between the ten text messages, except for the following text messages: between text four (EMG = 0.25) and text seven (EMG = -0.34; t- value (34)= 2.72; $p < 0.01$); between text four (EMG = 0.25) and text nine (EMG = -0.22; t-value (33) = 2.15; $p < 0.05$) and between text eight (EMG = 0.19) and text nine (EMG = -0.22); t-value (36) = 2.19; $p < 0.05$).

Table 6.29: EMG measurements in NPO one (Cheetah Outreach)

Group Text	Messages	EMG	Group Text	Messages	EMG	t (two-tailed)	df	p
CO Text 4	Thank you for donating R500 to Cheetah Outreach!	0.25	CO Text 7	Dear supporter, thank you for your donation to Cheetah Outreach!	-0.34	2.72	34	p < 0.01
CO Text 4	Thank you for donating R500 to Cheetah Outreach!	0.25	CO Text 9	Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'	-0.22	2.15	33	p < 0.05
CO Text 8	Dear kind supporter, thank you for your donation to Cheetah Outreach!	0.19	CO Text 9	Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'	-0.22	2.19	36	p < 0.05

As can be seen in Table 6.29, a comparison between text four (EMG = 0.25), text seven (EMG = -0.34) and text nine (EMG = -0.22), indicates a negative emotional response towards text seven (EMG = -0.34) and text nine (EMG = -0.22). However, respondents showed a positive emotional response towards text four. In addition, a comparison between text eight (EMG = 0.19) and text nine (EMG = -0.22) shows a higher negative emotional response towards text nine. Therefore, hypotheses $H_{204b,}$ $H_{207b,}$ H_{208b} and H_{209b} are rejected.

6.3.3.7 EMG comparisons in NPO one (Cheetah Outreach): Males

The null hypothesis H_5 suggests that neurophysiological EMG measures for text one to text ten do not differ from each other in the gender groups. Table 6.30 indicates the significant differences found when comparisons between text messages in NPO one were made. Table 6.33 shows that there is a statistically significant deviation between text four (EMG = 0.34) and text ten (EMG = -0.55; t-value (17) = 2.33; $p < 0.05$). No other significant deviations were found.

Table 6.30: EMG comparisons in NPO one (Cheetah Outreach): Males

Group Text	Messages	EMG	Group Text	Messages	EMG	t (two-tailed)	df	p
CO (1) Text 4	Thank you for donating R500 to Cheetah Outreach!	0.34	CO (1) Text 10	Your donation has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Sheperd Dog Programme in support of protecting the wild Cheetah.	-0.55	2.33	17	$p < 0.05$

As illustrated in Table 6.30, there is a statistically significant difference between the EMG scores of text four and text ten. A positive EMG measure was detected after exposure to text four (EMG = 0.34) amongst male respondents. Male respondents showed a higher negative EMG measure (EMG = -0.55) after exposure to text ten. Therefore, hypotheses H_{507b} and H_{519b} are rejected amongst the male respondents.

6.3.3.8 EMG comparisons in NPO one (Cheetah Outreach): Females

The null hypothesis H_5 suggests that neurophysiological GSR measures for text one to text ten do not differ from each other in the gender groups. Table 6.31 indicates the significant differences found when comparisons in NPO one were made. Table 6.31 suggests that there is a statistically significant difference between text seven (EMG = - 0.66) and text one (EMG = 0.93; t-value (18) = 2.21; $p < 0.05$), text four (EMG = 0.17; t-value (18) = 2.41; $p < 0.05$), text five (EMG = 0.66; t-value (15) = 2.13; $p < 0.05$), text six (EMG = 0.42; t-value (18) = 2.60; $p < 0.01$) and text eight (EMG = 0.46; t-value (18) = 2.25; $p < 0.05$).

There was a significant difference between text eight (EMG = 0.46) and text three (EMG = - 0.18; t-value (17) = 2.15; $p < 0.05$), text seven (as seen above) and text nine (EMG = -0.35; t-value (18) = 2.45; $p < 0.05$).

Additionally, there was a significant difference between text nine (EMG = -0.35) and text one (EMG = 0.93; t-value (19) = 2.74; $p < 0.01$), text five (EMG = 0.66; t-value (16) = 2.12; $p < 0.05$), text six (EMG = 0.42; t-value (19) = 2.44; $p < 0.05$) and text eight (as seen above). No other significant differences were found.

Table 6.31: EMG comparisons in NPO one (Cheetah Outreach): Females

Group Text	Messages	EMG	Group Text	Messages	EMG	t (two-tailed)	df	p
CO (1) Text 1	Thank you for your donation!	0.93	CO (1) Text 7	Dear supporter, thank you for your donation to Cheetah Outreach!	-0.66	2.21	18	$p < 0.05$
CO (1) Text 1	Thank you for your donation!	0.93	CO (1) Text 9	Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'	-0.35	2.74	19	$p < 0.01$
CO (1) Text 3	Thank you for your generous donation to Cheetah Outreach. We value your support – it really makes a difference!	-0.18	CO (1) Text 8	Dear kind supporter, thank you for your donation to Cheetah Outreach!	0.46	2.15	17	$p < 0.05$
CO (1) Text 4	Thank you for donating R500 to Cheetah Outreach!	0.17	CO (1) Text 7	Dear supporter, thank you for your donation to Cheetah Outreach!	-0.66	2.41	18	$p < 0.05$
CO (1) Text 5	Thanks to your donation we have managed to raise R250 000 for Cheetah Outreach. Thank you for making a difference!	0.66	CO (1) Text 7	Dear supporter, thank you for your donation to Cheetah Outreach!	-0.66	2.13	15	$p < 0.05$
CO (1) Text 5	Thanks to your donation we have managed to raise R250 000 for Cheetah Outreach. Thank you for making a difference!	0.66	CO (1) Text 9	Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'	-0.35	2.12	16	$p < 0.05$
CO (1) Text 6	Your donation has helped us to save 150 cheetahs in the past 12 months!	0.42	CO (1) Text 7	Dear supporter, thank you for your donation to Cheetah Outreach!	-0.66	2.60	18	$p < 0.01$
CO (1) Text 6	Your donation has helped us to save 150 cheetahs in the past 12 months!	0.42	CO (1) Text 9	Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'	-0.35	2.44	19	$p < 0.05$
CO (1) Text 7	Dear supporter, thank you for your donation to Cheetah Outreach!	-0.66	CO (1) Text 8	Dear kind supporter, thank you for your donation to Cheetah Outreach!	0.46	2.25	18	$p < 0.05$
CO (1) Text 8	Dear kind supporter, thank you for your donation to Cheetah Outreach!	0.46	CO (1) Text 9	Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'	-0.35	2.45	18	$p < 0.05$

Closer inspection of Table 6.31 reveals many significant differences when text messages were compared amongst the female respondent group. Therefore, hypotheses $H_{502b,}$ $H_{506b,}$ $H_{508b,}$ $H_{510b,}$ $H_{512b,}$ $H_{514b,}$ H_{516b} and H_{518b} in the case of NPO one, are rejected.

6.3.3.9 EMG comparisons in NPO one (Cheetah Outreach): Males and females

A comparison of male and female respondents' EMG scores were measured and recorded after exposure to text messages of NPO one. The null hypothesis H_4 suggests that gender neurophysiological EMG measures for text one to text ten do not differ from each other. There were no significant deviations from the baseline when the scores between males and females were compared, except for text one (t-value (38) = 2.65; $p < 0.01$), text seven (t-value (37) = -1.99; $p < 0.05$) and text ten (t-value (38) = 2.03; $p < 0.05$), indicated in bold in Table 6.32. The complete results are presented in tabular format in Table 6.32.

Table 6.32: EMG comparisons in NPO one (Cheetah Outreach): Males and females

CO NPO one	Messages	EMG males	EMG females	t	df	p	Conclusion
Text 1	**Thank you for your donation!**	**-0.44**	**0.93**	**2.65**	**38**	**p < 0.01**	**Significant difference**
Text 2	Thank you for donating to Cheetah Outreach!	0.03	-0.11	-0.62	35	p > 0.05	No significant difference
Text 3	Thank you for your generous donation to Cheetah Outreach. We value your support – it really makes a difference!	-0.11	-0.18	-0.30	35	p > 0.05	No significant difference
Text 4	Thank you for donating R500 to Cheetah Outreach!	0.34	0.17	-0.64	36	p > 0.05	No significant difference
Text 5	Thanks to your donation we have managed to raise R250 000 for Cheetah Outreach. Thank you for making a difference!	-0.10	0.66	1.30	36	p > 0.05	No significant difference
Text 6	Your donation has helped us to save 150 cheetahs in the past 12 months!	-0.35	0.42	1.71	38	p > 0.05	No significant difference
Text 7	**Dear supporter, thank you for your donation to Cheetah Outreach!**	**-0.01**	**-0.66**	**-1.99**	**37**	**p < 0.05**	**Significant difference**
Text 8	Dear kind supporter, thank you for your donation to Cheetah Outreach!	-0.07	0.46	1.46	39	p > 0.05	No significant difference
Text 9	Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'	-0.08	-0.35	-1.06	36	p > 0.05	No significant difference
Text 10	**Your donation has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Shepherd Dog Programme in support of protecting the wild Cheetah.**	**-0.55**	**0.45**	**2.03**	**38**	**p < 0.05**	**Significant difference**

Table 6.32 reveals that there are no significant differences when comparing the EMG scores of males with females, except for the differences between text one, text seven and text ten. Text one

and text ten indicate positive EMG scores amongst females, thus showing positive emotions. More specifically, female respondents were more positive towards all ten text messages. However, a negative EMG score is detected towards text seven amongst females which was significantly higher in comparison to the EMG score shown amongst the males. Therefore, the EMG results support the rejection of hypotheses H_{401b}, H_{407b}, H_{410b} in the case of NPO one.

6.3.3.10 EMG comparisons in NPO one (Cheetah Outreach): Rational decision-makers

Table 6.33 indicates the significant differences found when comparing text messages in NPO one. The null hypothesis of H_8 suggests that neurophysiological EMG measures for text one to text ten do not differ from each other in the decision-basis groups. Table 6.36 suggests that there is a statistically significant difference between the text messages of NPO one. There are significant differences between text four (EMG = 0.40) and text three (EMG = -0.32, t-value (41) = 2.84; $p < 0.01$), text seven (EMG = -029, t-value (41) = 2.86; $p < 0.01$), text nine (EMG = -0.27, t-value (40) = 2.67; $p < 0.01$) and text ten (EMG = -0.41, t-value (40) = 2.61; $p < 0.01$). No other significant differences were found.

Table 6.33: EMG comparisons in NPO one (Cheetah Outreach): Rational decision-makers

Group Text	Messages	EMG	Group Text	Messages	EMG	t	df	p
CO (1) Text 4	Thank you for donating R500 to Cheetah Outreach!	0.40	CO (1) Text 3	Thank you for your generous donation to Cheetah Outreach. We value your support – it really makes a difference!	-0.32	2.84	41	p < 0.01
CO (1) Text 4	Thank you for donating R500 to Cheetah Outreach!	0.40	CO (1) Text 7	Dear supporter, thank you for your donation to Cheetah Outreach!	-0.29	2.86	41	p < 0.01
CO (1) Text 4	Thank you for donating R500 to Cheetah Outreach!	0.40	CO (1) Text 9	Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'	-0.27	2.67	40	p < 0.01
CO (1) Text 4	Thank you for donating R500 to Cheetah Outreach!	0.40	CO (1) Text 10	Your donation has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Shepherd Dog Programme in support of protecting the wild Cheetah.	-0.41	2.61	40	p < 0.01

Table 6.33 reveals multiple significant differences between the text messages of NPO one amongst rational decision-makers. There was a higher level of positive emotional response towards text four in comparison with text three, text seven, text nine and text ten. Therefore, hypotheses H_{805b}, H_{807b}, H_{813b}, H_{817b}, H_{819b} in the case of NPO one are rejected.

6.3.3.11 EMG comparisons in NPO one (Cheetah Outreach): Emotional decision-makers

The null hypothesis H_8 suggests that neurophysiological EMG measures for text one to text ten do not differ from each other in the decision-basis groups. There were no significant differences

between the text messages when comparisons of the EMG results in NPO one were made amongst the emotional decision-makers. The EMG results thus support hypotheses H_{802b}, H_{804b}, H_{806b}, H_{808b}, H_{810b}, H_{812b}, H_{814b}, H_{816b}, H_{818b}, H_{820b} in the case of NPO one.

6.3.3.12 EMG comparisons in NPO one (Cheetah Outreach): Rational and emotional decision-makers

The null hypothesis H_7 suggests that decision-basis neurophysiological EMG measures for text one to text ten do not differ from each other. A comparison between rational and emotional decision-makers' EMG scores were measured after exposure to the text messages in NPO one. There were no significant differences when the EMG scores were compared. The results are presented in Table 6.34.

Table 6.34: EMG comparisons in NPO one (Cheetah Outreach): Rational and emotional decision-makers

CO NPO one	Messages	EMG rational	EMG emotional	t	df	p	Conclusion
Text 1	Thank you for your donation!	-0.12	0.77	1.62	38	p > 0.05	Neutral response
Text 2	Thank you for donating to Cheetah Outreach!	-0.02	-0.06	-0.18	35	p > 0.05	Neutral response
Text 3	Thank you for your generous donation to Cheetah Outreach. We value your support – it really makes a difference!	-0.32	0.12	1.85	35	p > 0.05	Neutral response
Text 4	Thank you for donating R500 to Cheetah Outreach!	0.40	0.06	-1.23	36	p > 0.05	Neutral response
Text 5	Thanks to your donation we have managed to raise R250 000 for Cheetah Outreach. Thank you for making a difference!	0.13	0.40	0.45	36	p > 0.05	Neutral response
Text 6	Your donation has helped us to save 150 cheetahs in the past 12 months!	0.26	-0.26	-1.11	38	p > 0.05	Neutral response
Text 7	Dear supporter, thank you for your donation to Cheetah Outreach!	-0.29	-0.42	-0.37	37	p > 0.05	Neutral response
Text 8	Dear kind supporter, thank you for your donation to Cheetah Outreach!	0.24	0.12	-0.32	39	p > 0.05	Neutral response
Text 9	Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'	-0.27	-0.16	0.42	36	p > 0.05	Neutral response
Text 10	Your donation has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Sheperd Dog Programme in support of protecting the wild Cheetah.	-0.41	0.29	1.36	38	p > 0.05	Neutral response

Table 6.34 reveals that there were no significant differences when the EMG scores when rational versus emotional decision-makers were compared, thus indicating neutral responses. Therefore, the EMG results support hypotheses H_{701b}, H_{702b}, H_{703b}, H_{704b}, H_{705b}, H_{706b}, H_{707b}, H_{708b}, H_{709b}, H_{710b} in the case of NPO one.

6.3.4 EMG text message results for NPO two (Reach for a Dream)

The EMG results of respondents who were exposed to the text messages of NPO two (Reach for a Dream) are discussed in tabular format in Table 6.35. The results are reported overall, by gender (male and female) and by decision-basis (emotional and rational decision-makers).

6.3.4.1 EMG results for NPO two (Reach for a Dream)

Table 6.35 shows EMG scores for the sample of respondents who were exposed to the stimuli of NPO two. The null hypothesis H_1 suggests that neurophysiological measures for EMG do not differ from the baseline in text one to text ten in the case of NPO two. The EMG scores do not show significant deviations from the baseline, except for text one (EMG = -0.29; $p < 0.05$) and text nine (EMG = 0.32; $p < 0.05$), indicated in bold in Table 6.35. In these instances, the EMG score for text one is negative, thus indicating a negative emotional response, while the EMG score for text nine indicates a positive emotional response.

Table 6.35: EMG measurements: NPO two (Reach for a Dream)

RFDRM NPO two	Messages	EMG	t	df	p	Conclusion
Text 1	**Thank you for your donation!**	**-0.29**	**-2.04**	**37**	**p < 0.05**	**Negative emotion**
Text 2	Thank you for donating to Reach For A Dream!	0.23	1.48	40	p > 0.05	Neutral response
Text 3	Thank you for your generous donation to Reach for a Dream. We value your support – it really makes a difference!	0.24	1.93	37	p > 0.05	Neutral response
Text 4	Thank you for donating R500 to Reach for a Dream	0.14	0.80	36	p > 0.05	Neutral response
Text 5	Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!	-0.29	-1.55	40	p > 0.05	Neutral response
Text 6	Your donation has helped us to support 16 520 children in the past 12 months!	0.03	0.16	40	p > 0.05	Neutral response
Text 7	Dear supporter, thank you for your donation to Reach for a Dream!	-0.22	-0.98	40	p > 0.05	Neutral response

Text 8	Dear kind supporter, thank you for your donation to Reach for a Dream!	0.24	1.18	38	p > 0.05	Neutral response
Text 9	**Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'**	**0.32**	**2.21**	**38**	**p < 0.05**	**Positive emotion**
Text 10	Your donation has contributed towards helping Reach for a Dream continue giving hope to children fighting life-threatening illnesses.	-0.02	-0.09	40	p > 0.05	Neutral response

As a result of the significant deviations indicated by the EMG scores in terms of text one (EMG = -0.29) and text nine (EMG = 0.32), hypotheses H_{101b} and H_{109b} in NPO two are rejected.

6.3.4.2 EMG results for NPO two (Reach for a Dream): Males

Table 6.36 shows the EMG scores for the sample of male respondents in NPO two (the full sample of 46 respondents). The respondents were exposed to all ten text messages in NPO two. The null hypothesis H_3 suggests that gender neurophysiological measures for EMG do not differ from the baseline in text one to text ten in the case of male respondents in NPO two. The EMG scores show that there were no statistically significant deviations from the baseline after exposure to the stimuli for the ten text messages amongst males.

Table 6.36: EMG measurements for NPO two (Reach for a Dream): Males

RFDRM NPO two	Messages	EMG	t	df	p	Conclusion
Text 1	Thank you for your donation!	-0.14	-0.63	18	p > 0.05	Neutral response
Text 2	Thank you for donating to Reach For A Dream!	0.20	0.84	21	p > 0.05	Neutral response
Text 3	Thank you for your generous donation to Reach for a Dream. We value your support – it really makes a difference!	0.13	0.98	20	p > 0.05	Neutral response
Text 4	Thank you for donating R500 to Reach for a Dream	0.02	0.08	17	p > 0.05	Neutral response
Text 5	Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!	-0.18	-0.88	21	p > 0.05	Neutral response
Text 6	Your donation has helped us to support 16 520 children in the past 12 months!	0.05	0.29	21	p > 0.05	Neutral response
Text 7	Dear supporter, thank you for your donation to Reach for a Dream!	-0.42	-1.58	20	p > 0.05	Neutral response
Text 8	Dear kind supporter, thank you for your donation to Reach for a Dream!	-0.02	-0.09	19	p > 0.05	Neutral response
Text 9	Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'	0.34	1.97	20	p > 0.05	Neutral response

Text 10	Your donation has contributed towards helping Reach for a Dream continue giving hope to children fighting life-threatening illnesses.	-0.04	-0.32	21	p > 0.05	Neutral response

Table 6.36 indicates that there were no significant deviations as a result of the exposure to the text messages, thus indicating neutral responses towards the stimuli. Therefore, the EMG results support hypotheses H_{301b}, H_{303b}, H_{305b}, H_{307b}, H_{309b}, H_{311b}, H_{313b} H_{315b}, H_{317b} and H_{319b} in NPO two amongst males.

6.3.4.3 EMG results for NPO two (Reach for a Dream): Females

Table 6.37 shows the EMG scores for the sample of female respondents in NPO two (the full sample of 44 respondents). The null hypothesis H_3 suggests that gender neurophysiological measures for EMG do not differ from the baseline in text one to text ten in the case of female respondents in NPO two. The respondents were exposed to ten text messages of NPO two. The EMG scores show that there were no statistically significant deviations from the baseline after exposure to the stimuli for the ten text messages except for text one (EMG= -0.44, t-value (18) = -2.46; $p < 0.05$) amongst females.

Table 6.37: EMG measurements for NPO two (Reach for a Dream): Females

RFDRM NPO two	Messages	EMG	t	df	p	Conclusion
Text 1	**Thank you for your donation!**	**-0.44**	**-2.46**	**18**	**p < 0.05**	**Negative Emotion**
Text 2	Thank you for donating to Reach For A Dream!	0.27	1.32	18	p > 0.05	Neutral response
Text 3	Thank you for your generous donation to Reach for a Dream. We value your support – it really makes a difference!	0.38	1.68	16	p > 0.05	Neutral response
Text 4	Thank you for donating R500 to Reach for a Dream	0.25	0.88	18	p > 0.05	Neutral response
Text 5	Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!	-0.42	-1.26	18	p > 0.05	Neutral response
Text 6	Your donation has helped us to support 16 520 children in the past 12 months!	0.01	0.03	18	p > 0.05	Neutral response
Text 7	Dear supporter, thank you for your donation to Reach for a Dream!	0.00	-.01	19	p > 0.05	Neutral response
Text 8	Dear kind supporter, thank you for your donation to Reach for a Dream!	0.52	1.45	18	p > 0.05	Neutral response
Text 9	Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'	0.29	1.19	17	p > 0.05	Neutral response
Text 10	Your donation has contributed towards helping Reach for a Dream continue giving hope to children fighting life-threatening illnesses.	0.01	0.02	18	p > 0.05	Neutral response

Table 6.37 illustrates that there were no significant deviations as a result of exposure to the text messages, except for text one (EMG = -0.44), thus indicating a negative emotional response towards the stimulus. Therefore, the EMG results support the rejection of hypothesis H_{302b} in NPO two amongst females.

6.3.4.4 EMG results for NPO two (Reach for a Dream): Rational decision-makers

Table 6.38 shows the EMG scores for the rational decision-makers in NPO two (full sample of 39 respondents). The null hypothesis H_6 suggests that decision-basis neurophysiological measures for EMG do not differ from the baseline in text one to text ten amongst the rational decision-makers in NPO two. The respondents were exposed to all ten text messages of NPO two. The EMG scores show that there were no statistically significant deviations from the baseline after exposure to the text messages, except for text nine (EMG = 0.40, t-value (22) = 2.77; $p < 0.01$) amongst rational decision-makers in NPO two.

Table 6.38: EMG measurements for NPO two (Reach for a Dream): Rational decision-makers

RFDRM NPO two	Messages	EMG	t	df	p	Conclusion
Text 1	Thank you for your donation!	-0.35	-1.48	20	p > 0.05	Neutral response
Text 2	Thank you for donating to Reach For A Dream!	0.30	1.54	21	p > 0.05	Neutral response
Text 3	Thank you for your generous donation to Reach for a Dream. We value your support – it really makes a difference!	0.21	1.11	20	p > 0.05	Neutral response
Text 4	Thank you for donating R500 to Reach for a Dream	-0.13	-0.59	19	p > 0.05	Neutral response
Text 5	Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!	-0.23	-1.04	23	p > 0.05	Neutral response
Text 6	Your donation has helped us to support 16 520 children in the past 12 months!	0.21	1.48	23	p > 0.05	Neutral response
Text 7	Dear supporter, thank you for your donation to Reach for a Dream!	-0.25	-0.78	23	p > 0.05	Neutral response
Text 8	Dear kind supporter, thank you for your donation to Reach for a Dream!	0.18	1.05	23	p > 0.05	Neutral response
Text 9	**Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'**	0.40	2.77	22	**p < 0.01**	**Positive Emotion**
Text 10	Your donation has contributed towards helping Reach for a Dream continue giving hope to children fighting life-threatening illnesses.	-0.21	-0.71	23	p > 0.05	Neutral Emotion

There were no significant deviations as shown in Table 6.38 as a result of exposure to the text messages, except for text nine (EMG = 0.40), indicated in bold. The results portray a positive

emotional response towards text nine. Therefore, the EMG results support the rejection of H_{617b}, in NPO two amongst rational decision-makers.

6.3.4.5 EMG results for NPO two (Reach for a Dream): Emotional decision-makers

Table 6.39 illustrates the EMG scores for emotional decision-makers in NPO two (the full sample of 40 respondents). The null hypothesis H_6 suggests that decision-basis neurophysiological measures for EMG do not differ from the baseline in text one to text ten amongst the emotional decision-makers in NPO two. The respondents were exposed to all ten text messages of NPO two.

Table 6.39: EMG measurements for NPO two (Reach for a Dream): Emotional decision-makers

RFDRM NPO two	Messages	EMG	t	df	p	Conclusion
Text 1	Thank you for your donation!	-0.21	-1.65	16	p > 0.05	Neutral response
Text 2	Thank you for donating to Reach For A Dream!	0.16	0.61	18	p > 0.05	Neutral response
Text 3	Thank you for your generous donation to Reach for a Dream. We value your support – it really makes a difference!	0.29	1.72	16	p > 0.05	Neutral response
Text 4	Thank you for donating R500 to Reach for a Dream	0.45	1.70	16	p > 0.05	Neutral response
Text 5	Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!	-0.38	-1.12	16	p > 0.05	Neutral response
Text 6	Your donation has helped us to support 16 520 children in the past 12 months!	-0.21	-0.46	16	p > 0.05	Neutral response
Text 7	Dear supporter, thank you for your donation to Reach for a Dream!	-0.18	-0.58	16	p > 0.05	Neutral response
Text 8	Dear kind supporter, thank you for your donation to Reach for a Dream!	0.34	0.73	14	p > 0.05	Neutral response
Text 9	Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'	0.20	0.69	15	p > 0.05	Neutral response
Text 10	Your donation has contributed towards helping Reach for a Dream continue giving hope to children fighting life-threatening illnesses.	0.25	0.92	16	p > 0.05	Neutral response

The EMG scores show that there were no statistically significant deviations from the baseline after exposure to the stimuli amongst emotional decision-makers. The EMG results indicate neutral responses and therefore hypotheses H_{602b}, H_{604b}, H_{606b}, H_{608b}, H_{610b}, H_{612b}, H_{614b} H_{616b}, H_{618b} and H_{620b} in NPO two amongst emotional decision-makers, are supported.

6.3.4.6 EMG comparisons in NPO two (Reach for a Dream)

The analysis of the facial muscle activity is reported in Table 6.40. The null hypothesis H_2 posits that neurophysiological measures for EMG do not differ from each other in text one to text ten in the case of NPO two.

Comparisons of EMG measures between the text messages in NPO two do not show significant differences, except for differences between text one (EMG = -0.29) and text nine (EMG = 0.32; t-value (35) = 3.19; $p < 0.01$), between text two (EMG = 0.23) and text five (EMG = -0.29; t-value (38) = 2.10; $p < 0.05$) and between text two (EMG = 0.23) and text seven (EMG = -0.22; t-value (36) = 2.18; $p < 0.05$), and between text seven (EMG = -0.22) and text nine (EMG = 0.32; t-value (37) = 2.07; $p < 0.05$).

Table 6.40: EMG measurements in NPO two (Reach for a Dream)

Group Text	Messages	EMG	Group Text	Messages	EMG	t (two-tailed)	df	p
RFDRM Text 1	Thank you for your donation!	-0.29	RFDRM Text 9	Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'	0.32	3.19	35	$p < 0.01$
RFDRM Text 2	Thank you for donating to Reach For A Dream!	0.23	RFDRM Text 5	Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!	-0.29	2.10	38	$p < 0.05$
RFDRM Text 2	Thank you for donating to Reach For A Dream!	0.23	RFDRM Text 7	Dear supporter, thank you for your donation to Reach for a Dream!	-0.22	2.18	36	$p < 0.05$
RFDRM Text 7	Dear supporter, thank you for your donation to Reach for a Dream!	-0.22	RFDRM Text 9	Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'	0.32	2.07	37	$p < 0.05$

Respondents were more positive towards text nine than towards text one and text seven, as can be seen in Table 6.40. Text two elicited a higher positive emotional response compared to text five and text seven. Therefore, the EMG results reject hypotheses H_{201b}, H_{202b}, H_{205b}, H_{207b}, H_{209b} in NPO two.

6.3.4.7 EMG comparisons in NPO two (Reach for a Dream): Males

Table 6.41 indicates the significant differences found when gender comparisons in NPO two were made. The null hypothesis H_5 suggests that neurophysiological EMG measures for text one to text ten do not differ from each other in the gender groups. Table 6.41 suggests that there is a statistically significant difference between text five (EMG = -0.18) and text 9 (EMG = 0.34; t-value (19) = 2.10; $p < 0.05$). In addition, there is a statistically significant difference between text seven

(EMG = -0.42) and text nine (EMG = 0.34; t-value (19) = 2.20; $p < 0.05$). No other significant differences were found.

Table 6.41: EMG comparisons in NPO two (Reach for a Dream): Males

Group Text	Messages	EMG	Group Text	Messages	EMG	t (two-tailed)	df	p
RFDRM (2) Text 5	Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!	-0.18	RFDRM (2) Text 9	Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'	0.34	2.10	19	$p < 0.05$
RFDRM (2) Text 7	Dear supporter, thank you for your donation to Reach for a Dream!	-0.42	RFDRM (2) Text 9	Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'	0.34	2.20	19	$p < 0.05$

In Table 6.41 text five and text seven indicate significant differences when compared with text nine. Male respondents showed a positive emotional response towards text nine in comparison to text five and text seven. Therefore, hypotheses $H_{509b,}$ H_{513b} and H_{517b} are rejected amongst the male respondents in NPO two.

6.3.4.8 EMG comparisons in NPO two (Reach for a Dream): Females

Table 6.42 indicates the significant differences found when comparisons in NPO two's text messages were analysed. The null hypothesis H_5 suggests that neurophysiological EMG measures for text one to text ten do not differ from each other in the gender groups. Table 6.42 suggests that there is a statistically significant difference between the emotional responses towards text one (EMG = -0.44) and text three (EMG = 0.38; t-value (15) = 2.56; $p < 0.05$) and text nine (EMG = 0.29; t-value (16) = 2.68; $p < 0.01$). No other significant deviations were found.

Table 6.42: EMG comparisons in NPO two (Reach for a Dream): Females

Group Text	Messages	EMG	Group Text	Messages	EMG	t (two-tailed)	df	p
RFDRM (2) Text 1	Thank you for your donation!	-0.44	RFDRM (2) Text 3	Thank you for your generous donation to Reach for a Dream. We value your support – it really makes a difference!	0.38	2.56	15	$p < 0.05$
RFDRM (2) Text 1	Thank you for your donation!	-0.44	RFDRM (2) Text 9	Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'	0.29	2.68	16	$p < 0.01$

Text one in Table 6.42 indicates significant differences in the responses when compared with text three and text nine. A positive emotional response was indicated for the EMG scores of female

respondents towards text three and text nine in comparison with text one. Therefore, the hypotheses $H_{502b,}$ H_{506b} and H_{518b} are rejected amongst the female respondents in NPO two.

6.3.4.9 EMG comparisons in NPO two (Reach for a Dream): Males and females

A comparison of the EMG scores between male and female respondents was made after exposure to the text messages of NPO two. The null hypothesis H_4 suggests that gender neurophysiological EMG measures for text one to text ten do not differ from each other. There were no significant deviations from the baseline when the scores between males and females were compared. The results are presented in Table 6.43.

Table 6.43: EMG comparisons in NPO two (Reach for a Dream): Males and females

RFDRM NPO two	Messages	EMG males	EMG females	t	df	p	Conclusion
Text 1	Thank you for your donation!	-0.14	-0.44	-1.07	36	p > 0.05	Neutral response
Text 2	Thank you for donating to Reach For A Dream!	0.20	0.27	0.22	39	p > 0.05	Neutral response
Text 3	Thank you for your generous donation to Reach for a Dream. We value your support – it really makes a difference!	0.13	0.38	0.98	36	p > 0.05	Neutral response
Text 4	Thank you for donating R500 to Reach for a Dream	0.02	0.25	0.69	35	p > 0.05	Neutral response
Text 5	Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!	-0.18	-0.42	-0.62	39	p > 0.05	Neutral response
Text 6	Your donation has helped us to support 16 520 children in the past 12 months!	0.05	0.01	-0.09	39	p > 0.05	Neutral response
Text 7	Dear supporter, thank you for your donation to Reach for a Dream!	-0.42	0.00	0.94	39	p > 0.05	Neutral response
Text 8	Dear kind supporter, thank you for your donation to Reach for a Dream!	-0.02	0.52	1.32	37	p > 0.05	Neutral response
Text 9	Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'	0.34	0.29	-0.19	37	p > 0.05	Neutral response
Text 10	Your donation has contributed towards helping Reach for a Dream continue giving hope to children fighting life-threatening illnesses.	-0.04	0.01	0.12	39	p > 0.05	Neutral response

Table 6.43 illustrates that there were no significant deviations from the baseline for each text message when the EMG scores for males and females were compared. Therefore, the EMG results support hypotheses H_{401b}, H_{402b}, H_{403b}, H_{404b}, H_{405b}, H_{406b}, H_{407b}, H_{408b}, H_{409b}, H_{410b} in the case of NPO two.

6.3.4.10 EMG comparisons in NPO two (Reach for a Dream): Rational decision-makers

The null hypothesis H_8 suggests that neurophysiological EMG measures for text one to text ten do not differ from each other in the decision-basis groups. Table 6.44 indicates the significant differences found between text one (EMG = -0.35) and text two (EMG = 0.30, t-value (41) = 2.13; $p < 0.05$), text six (EMG = 0.21, t-value (43) = 2.09; $p < 0.05$) and text nine (EMG = 0.40, t-value (42) = 2.76; $p < 0.01$) in NPO two. There was also a significant difference between text nine (EMG = 0.40) and text four (EMG = -0.13, t-value (41) = 2.08; $p < 0.05$) and text five (EMG = -0.23, t-value (45) = 2.36; $p < 0.05$). No other significant deviations were found in NPO two.

Table 6.44: EMG comparisons in NPO two (Reach for a Dream): Rational decision-makers

Group Text	Messages	EMG	Group Text	Messages	EMG	t (two-tailed)	df	p
RFDRM (2) Text 1	Thank you for your donation!	-0.35	RFDRM (2) Text 2	Thank you for donating to Reach For A Dream!	0.30	2.13	41	$p < 0.05$
RFDRM (2) Text 1	Thank you for your donation!	-0.35	RFDRM (2) Text 6	Your donation has helped us to support 16 520 children in the past 12 months!	0.21	2.09	43	$p < 0.05$
RFDRM (2) Text 1	Thank you for your donation!	-0.35	RFDRM (2) Text 9	Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'	0.40	2.76	42	$p < 0.01$
RFDRM (2) Text 4	Thank you for donating R500 to Reach for a Dream	-0.13	RFDRM (2) Text 9	Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'	0.40	2.08	41	$p < 0.05$
RFDRM (2) Text 5	Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!	-0.23	RFDRM (2) Text 9	Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'	0.40	2.36	45	$p < 0.05$

As can be seen in Table 6.44, a number of significant differences exist between the text messages shown amongst rational decision-makers. Text two, text six and text nine reported positive emotional responses, whereas text one, text four and text five showed negative emotional responses. Therefore, hypotheses H_{801b}, H_{803b}, H_{807b}, H_{809b}, H_{811b}, H_{817b} in NPO two are rejected.

6.3.4.11 EMG comparisons in NPO two (Reach for a Dream): Emotional decision-makers

The null hypothesis H_8 suggests that neurophysiological EMG measures for text one to text ten do not differ from each other in the decision-basis groups. Table 6.45 illustrates that there is a statistically significant difference between text one (EMG = -0.21) and text three (EMG = 0.29; t-

value (32) = 2.36; p < 0.05) and text four (EMG = 0.45; t-value (32) = 2.24; p < 0.05). No other significant deviations were found.

Table 6.45: EMG comparisons in NPO two (Reach for a Dream): Emotional decision-makers

Group Text	Messages	EMG	Group Text	Messages	EMG	t (two-tailed)	df	p
RFDRM (2) Text 1	Thank you for your donation!	-0.21	RFDRM (2) Text 3	Thank you for your generous donation to Reach for a Dream. We value your support – it really makes a difference!	0.29	2.36	32	p < 0.05
RFDRM (2) Text 1	Thank you for your donation!	-0.21	RFDRM (2) Text 4	Thank you for donating R500 to Reach for a Dream	0.45	2.24	32	p < 0.05

Table 6.45 demonstrates that there are significant differences between the text messages when comparing the EMG results amongst emotional decision-makers in the case of NPO two. The EMG results thus suggest the rejection of hypotheses $H_{802b,}$ H_{806b} and H_{808b}, in NPO two.

6.3.4.12 EMG comparisons in NPO two (Reach for a Dream): Rational and emotional decision-makers

The null hypothesis H_7 suggests that decision-basis neurophysiological EMG measures for text one to text ten do not differ from each other. A comparison of EMG scores between rational and emotional decision-makers was made after exposure to text messages within NPO two. There were no significant differences when the EMG scores were compared. The results are presented in in Table 6.46.

Table 6.46: EMG comparisons in NPO two (Reach for a Dream): Emotional and rational decision-makers

RFDRM NPO two	Messages	EMG rational	EMG emotional	t	df	p	Conclusion
Text 1	Thank you for your donation!	-0.35	-0.21	0.48	36	p > 0.05	Neutral response
Text 2	Thank you for donating to Reach For A Dream!	0.30	0.16	-0.43	39	p > 0.05	Neutral response
Text 3	Thank you for your generous donation to Reach for a Dream. We value your support – it really makes a difference!	0.21	0.29	0.32	36	p > 0.05	Neutral response
Text 4	Thank you for donating R500 to Reach for a Dream	-0.13	0.45	1.71	35	p > 0.05	Neutral response
Text 5	Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!	-0.23	-0.38	-0.40	39	p > 0.05	Neutral response

Text 6	Your donation has helped us to support 16 520 children in the past 12 months!	0.21	-0.21	-1.00	39	p > 0.05	Neutral response
Text 7	Dear supporter, thank you for your donation to Reach for a Dream!	-0.25	-0.18	0.15	39	p > 0.05	Neutral response
Text 8	Dear kind supporter, thank you for your donation to Reach for a Dream!	0.18	0.34	0.37	37	p > 0.05	Neutral response
Text 9	Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'	0.40	0.20	-0.69	37	p > 0.05	Neutral response
Text 10	Your donation has contributed towards helping Reach for a Dream continue giving hope to children fighting life-threatening illnesses.	-0.21	0.25	1.09	39	p > 0.05	Neutral response

Table 6.46 indicates that there are no significant differences between EMG scores for rational and emotional decision-makers. Therefore, the EMG results support hypotheses H_{701b}, H_{702b}, H_{703b}, H_{704b}, H_{705b}, H_{706b}, H_{707b}, H_{708b}, H_{709b}, H_{710b} in the case of NPO two.

6.3.4.13 Summary of EMG results

The EMG scores for the ten text messages of NPO one (Cheetah Outreach), and NPO two (Reach for a Dream), were measured in order to identify the level of emotion experienced by respondents after exposure to the stimuli. After analysing the EMG scores of NPO one and NPO two, significant deviations from the baseline were identified. In NPO one, the EMG scores for text seven indicated a negative emotional response. In NPO two, the EMG score for text one indicated a negative emotional response, whereas the EMG score for text nine indicated a positive emotional response.

There were more statistically significant deviations from the baseline amongst the female respondents in NPO one compared to the male respondents. The results were similar in NPO two. A comparison between male and female EMG scores indicated that there were significant differences in NPO one. However, NPO two's results indicated that there were no significant differences when comparing the male and female EMG scores. Overall, the male respondents showed negative emotional responses towards the text messages. Considering the significant deviations from the baseline, female respondents showed a combination of both positive and negative emotions towards the text messages.

Analysing the results for NPO one, there were more statistically significant deviations from the baseline amongst the rational decision-makers compared to the emotional decision-makers. This outcome was consistent with the results of NPO two. A comparison between emotional and rational decision-makers in the same non-profit group indicated that there were no significant differences in NPO one and NPO two respectively. The number of significant deviations from the baseline for rational decision-makers in NPO one was equal to the number of significant deviations for rational decision-makers in NPO two. The result was consistent with emotional decision-makers

in both NPO one and NPO two. Considering the results that there were significant deviations from the baseline, rational decision-makers in NPO one and NPO two both showed positive emotional responses to the stimuli.

6.4 DESCRIPTIVE ANALYSIS OF EYE-TRACKING RESULTS

Eye-tracking monitors indicate an individual's visual spotlight by predicting how much attention is drawn towards the elements of a message or advertisement. In the current study, the respondents' eye movements were tracked and the data were collected and presented by means of the generation of heat maps. Heat maps are two-dimensional graphical representations of respondent eye movement (Bojko, 2009). Heat maps demonstrate which components of a stimulus attract the most attention. Heat maps indicate critical points of value by means of colour. The colours used are presented on a scale that coincides with temperature, thus minimising additional learning for the researchers in order to create understanding (Bojko, 2009).

Familiarity with temperature identifies the colour spectrum by assuming that yellow is warmer than green, orange is warmer than yellow and red is hot. Therefore, the amount of heat is proportionate to the number of respondents who pay a significant amount of attention to a particular element. Consequently, in line with the heat maps used in the current research, areas indicating warmer colours such as yellow, orange and red, indicated the highest number of respondents who focused their attention on the specific areas.

Different advantages of the various neurophysiological techniques (as explained in more detail in Addendum G) can be combined to yield superior results (Zurawicki, 2010). Additionally, a combination of techniques saves respondents time as a number of procedures are combined and can be performed in one session. Therefore, the current study used exploratory interpretations with the combination of EMG and GSR results for each text message.

A descriptive reporting technique analysed the results by using the heat maps generated from the eye-tracking measurements. Commonalties amongst the message elements across ten text messages in each non-profit group were included in the reporting. Each heat map was analysed by discussing the areas shaded in red that indicated the highest number of respondents who focussed on and paid attention to the specific area. It is unknown whether the reactions were positive or negative. The heat maps shown in Figures 6.1 - 6.10 provide an overview of each message including the elements that elicited attention. A brief discussion of each heat map is given below each table. However, further analyses of the eye-tracking results are included with the other discussions on the text messages in the next chapter.

6.4.1 Eye-tracking results per text message

The figures that follow discuss the eye-tracking results from the heat maps provided. Each figure illustrates the text message and the element tested for both non-profit groups. A discussion and

interpretation is provided. Further interpretation is integrated with the neurophysiological GSR and EMG results that are provided in the next chapter. Eye-tracking results provide further justification for the assumptions and conclusions made towards the neurophysiological responses, GSR and EMG towards each text message.

Figure 6.1: Eye-tracking descriptive analysis: Text one (simplified statement)

Text	ET Heat maps NPO One (Cheetah Outreach)	ET Heat maps NPO Two (Reach for a Dream)
Simplified statement	Thank you for your donation!	Thank you for your donation!
Text 3		

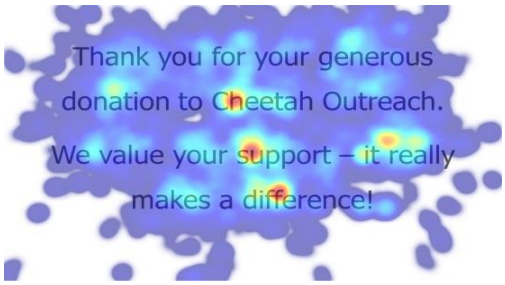
In Figure 6.1 text one is classified as a simple statement of thank you. Respondents focused on the wording ‘for your donation’ in both cases. Conclusions suggest that the eye-tracking results for text one show centricity bias.

Figure 6.2: Eye-tracking descriptive analysis: Text two (simplified statement specific non-profit)

Text	ET Heat maps NPO One (Cheetah Outreach)	ET Heat maps NPO Two (Reach for a Dream)
Simplified statement specific to NPO	Thank you for donating to Cheetah Outreach!	Thank you for donating to Reach for a Dream!
Text 2		

Text two in Figure 6.2 is classified as a simple statement of thank you similar to text one. However, the name of the non-profit organisation is included. The majority of respondents focused on the name of the non-profit organisation, namely Cheetah Outreach (NPO one). The same applies to NPO two, however, respondents focused on the ‘for’ that is part of the non-profit name, Reach for a Dream. Similarly, centricity bias may be the reasoning behind the heat map results for text two.

Figure 6.3: Eye-tracking descriptive analysis: Text three (elaborate wording)

Text	ET Heat maps NPO One (Cheetah Outreach)	ET Heat maps NPO Two (Reach for a Dream)
Elaborate Wording	Thank you for your generous donation to Cheetah Outreach. We value your support – it really makes a difference!	Thank you for your generous donation to Reach for a Dream. We value your support – it really makes a difference!
Text 3		

As can be seen in Figure 6.3, text three makes use of elaborate wording in order to thank donors for their donation in an emphatic manner. Descriptive adjectives such as 'generous' and 'really' were used in order to test the neurophysiological effects of elaborate wording. It appears most respondents focused their attention on the 'Cheetah' part of the name of the non-profit organisation, Cheetah Outreach as well as the words 'support', 'really' and 'difference'. In NPO two, respondents focused on 'support', 'really' and 'makes a difference'. The eye-tracking results for text three illustrate commonalties between messages.

Figure 6.4: Eye-tracking descriptive analysis: Text four (monetary numeric value)

Text	ET Heat maps NPO One (Cheetah Outreach)	ET Heat maps NPO Two (Reach for a Dream)
Monetary numeric value	Thank you for donating R500 to Cheetah Outreach!	Thank you for donating R500 to Reach for a Dream!
Text 4		

Text four in Figure 6.4 demonstrates the use of a monetary numeric value in Rands that indicates the amount that was donated by the donor. It is clear from the heat map results that the monetary value, namely R500, attracted attention. In addition, the eye-tracking measures revealed that the word 'Cheetah' also attracted a high level of attention. Respondents in NPO two focused on 'donating', 'R500' and 'Reach for a Dream'. The purpose of text four tested the inclusion of numeric values in comparison to wording. In both cases, respondents focused on the numeric values.

Figure 6.5: Eye-tracking descriptive analysis: Text five (collective monetary numeric value)

Text	ET Heat maps NPO One (Cheetah Outreach)	ET Heat maps NPO Two (Reach for a Dream)
Collective monetary numeric value	Thanks to your donation we have managed to raise R250 000 for Cheetah Outreach. Thank you for making a difference!	Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!
Text 5		

Similar to text four in Figure 6.4, text five in Figure 6.5 indicates the collective amount that was raised in Rands as a result of donations. The respondents focused on the numeric value 'R250 000' in addition to the words 'raise' and 'Cheetah'. The same result applied for NPO two. Again, the element tested was the inclusion of a numeric value. In both cases respondents focused on the numeric value. Centricity bias was overcome in text five as the positioning of 'R250 000' was slightly to the right and off-centre of the screen.

Figure 6.6: Eye-tracking descriptive analysis: Text six (factual quantitative statement)

Text	ET Heat maps NPO One (Cheetah Outreach)	ET Heat maps NPO Two (Reach for a Dream)
Factual quantitative statement	Your donation has helped us to save 150 cheetahs in the past 12 months!	Your donation has helped us to support 16 520 children in the past 12 months!
Text 6		

Text six in Figure 6.6 also includes a numeric value. The message refers to the number of cheetahs that have been helped as a result of the donations given to Cheetah Outreach. The respondents once again focused on the numeric value, namely 150. However, attention was not given to the number '12', which indicated the number of months in which 150 cheetahs were helped. Centricity bias may have influenced the results. As was the case with NPO one, respondents in NPO two also focused on the numeric value of 16 520.

Figure 6.7: Eye-tracking descriptive analysis: Text seven (generalised address)

Text	ET Heat maps NPO One (Cheetah Outreach)	ET Heat maps NPO Two (Reach for a Dream)
Generalised address	Dear supporter, thank you for your donation to Cheetah Outreach!	Dear supporter, thank you for your donation to Reach for a Dream!
Text 7		

As shown in Figure 6.7, text seven makes use of a generalised address to the donor by beginning the message with ‘dear supporter’. The heat map shows that respondents focused their attention on the words ‘supporter’, ‘thank you’ and ‘cheetah’ in addition to the exclamation mark. In NPO two, respondents focused on ‘thank you’ and ‘Reach for a Dream’ more than on ‘dear supporter’. The element tested was the phrase ‘dear supporter’. Respondents in NPO one only indicated focused attention on the phrase.

Figure 6.8: Eye-tracking descriptive analysis: Text eight (elaborate generalised address)

Text	ET Heat maps NPO One (Cheetah Outreach)	ET Heat maps NPO Two (Reach for a Dream)
Generalised address with descriptive wording	Dear kind supporter, thank you for your donation to Cheetah Outreach!	Dear kind supporter, thank you for your donation to Reach for a Dream!
Text 8		

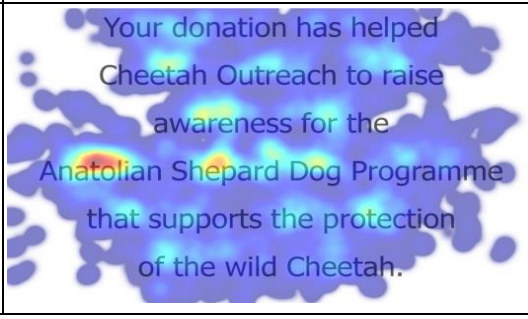
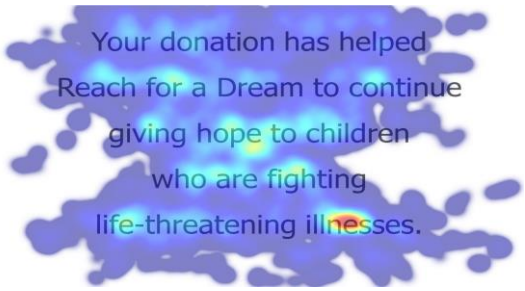
Similar to text seven in Figure 6.7, text eight in Figure 6.8 uses a generalised address with a descriptive word, ‘kind’ by beginning the message with ‘dear kind supporter’. The heat map shows that respondents focused their attention on ‘kind supporter’, ‘thank you’ and ‘cheetah’. In NPO two, respondents focused on ‘Reach for a Dream’ more intensely than ‘kind supporter’ and ‘you’ in ‘thank you’. However, the use of the word ‘kind’ attracted attention from the majority of the respondents.

Figure 6.9: Eye-tracking descriptive analysis: Text nine (message source)

Text	ET Heat maps NPO One (Cheetah Outreach)	ET Heat maps NPO Two (Reach for a Dream)
Message source	Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation to Cheetah Outreach!'	Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation to Reach for a Dream!'
Text 9		

Text nine in Figure 6.9 makes use of a message source. The respondents focused their attention on the first part of the message that introduces Liesl Smith as the message source and the manager of the non-profit organisation. Additionally, respondents also focused on the name of the non-profit organisation mentioned in the title of the message source in both cases. Results indicate that, in both cases, the use of a name of the message source attracted attention amongst the majority of respondents.

Figure 6.10: Eye-tracking descriptive analysis: Text ten (narrative statement)

Text	ET Heat maps NPO One (Cheetah Outreach)	ET Heat maps NPO Two (Reach for a Dream)
Narrative	Your support has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Shepherd Dog Programme in support of protecting the wild Cheetah.	Your support has contributed towards helping Reach for a Dream continue giving hope to children fighting life-threatening illnesses.
Text 10		

In Figure 6.10 text ten is a narrative message that includes lengthy, detailed information regarding the non-profit organisation. The message is slightly more specific whilst providing donors with information regarding their donation and how it has helped the organisation. The heat map for Cheetah Outreach shows that most respondents focused their attention on 'Anatolian Shepherd Dog'. The underlying reason for these results may be because respondents were confused and unfamiliar with the word 'Anatolian'.

Comparatively, the heat map for Reach for a Dream shows that most respondents focused their attention on the last word, namely 'illnesses'. The word 'illness' has negative associations to such

an extent that respondents focused more on the word in order to understand the meaning of the message. Additionally, it is the last word in the message. Due to message length, the results show that respondents read the complete message.

6.4.2 Eye-tracking summary

In most cases, the eye-tracking results between the NPO groups were similar. Numeric and monetary values in text four, text five and text six attracted focused attention by the majority of respondents. Additionally, the message source also received a high level of attention by most respondents. The results regarding descriptive and elaborate wording such as ‘kind’ in text eight and ‘really’ in text three elicited attention from the majority of respondents.

In addition, words such as ‘support’ and ‘difference’ also received focused attention from respondents in both non-profit groups. It is clear from the results that many of the messages indicated central positioning. Consequently, the results may indicate centricity bias. Also, the length of each message varied, thus influencing an irregular sight path of certain elements. The interpretation of the results will be discussed in the following section where the eye-tracking results confirm and add justification for the assumptions and conclusions made in terms of each neurophysiological result per text message.

6.5 SUMMARY

The final data was collated and analysed in Chapter six using text descriptions and accompanying tables illustrating the results. Additionally, each hypothesis was addressed. A descriptive analysis of the eye-tracking results was included. Chapter seven continues to interpret the results to provide meaningful and valuable conclusions as a result of the research conducted.

CHAPTER SEVEN

CONCLUSIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

This concluding chapter provides a holistic overview of the research purpose, process and findings. The objective of the study was to assess the influence of feedback messages from non-profit organisations on the neurophysiological responses of individuals. This chapter interprets the results and relates it to the primary objectives of the study. The limitations of the study are delineated and subsequent suggestions for future research are made. Managerial implications for the non-profit sector are also provided in an attempt to contribute to improved campaign design and communication considerations in the non-profit sector.

7.2 THE RESEARCH PURPOSE

Since the 1950s, the marketing concept has evolved giving rise to societal marketing and a new and growing niche market known as the non-profit sector. The growing number of non-profit organisations has led to intense competition in the industry itself. In addition, poor economic conditions have resulted in declining levels of government funding and private contributions. Dedicated commitment and support from organisations and individuals are thus required to address the growing demands of non-profit organisations for them to achieve success in the non-profit industry. Given the increasingly competitive environment, non-profit organisations should communicate more effectively. The marketing concept forms the basis for non-profit organisations to understand the needs and wants of individuals in order to appeal to and encourage their support. The focus of this study was to explore the role of more effective communication methods to overcome the dilemmas of declining government support and poor economic conditions constraining donations from the public.

7.3 THE RESEARCH PROCESS OVERVIEW

In this study, neuromarketing research was conducted to explore the impact of post-donation feedback messages on respondents' neurophysiological responses. Neuromarketing research assesses the neurophysiological responses experienced by consumers in response to a marketing stimulus. As a result, marketers are able to adjust and improve their existing marketing strategies to appeal to consumers on a subconscious level (Mehta & Panda, 2015). In the current study, neuromarketing was employed to explore the subconscious processes and emotional responses that may lead to certain donor behaviour in response to communication messages from non-profit organisations. Message content elements were furthermore identified and tested to ascertain which message design had the strongest influence on the levels of arousal and emotion of respondents. An overview of the research process is explained next.

The primary objective of the research was to investigate the influence of feedback message content on neurophysiological responses in a non-profit context. The primary objective was addressed by testing whether significant neurophysiological responses relating to arousal and emotions amongst respondents were produced after exposure to post-donation feedback messages. The research used electronic observation whereby the neurophysiological reactions of individuals were measured in response to a set of pre-designed post-donation text messages from non-profit organisations. The study focused on two South African non-profit organisations. The first chosen non-profit organisation, *Cheetah Outreach*, supports the protection and conservation of the endangered wild cheetah. The second non-profit organisation, *Reach for a Dream*, supports children with life-threatening illnesses.

A total of ninety individuals working and studying in and around Stellenbosch were chosen based on convenience sampling. The sample comprised individuals of mixed gender and age. Any individual who was right-handed was allowed to participate in the research. The data collection process took place over approximately nine weeks in a laboratory environment at Stellenbosch University. Three neurophysiological measures were used namely galvanic skin response (GSR), electromyography (EMG) and eye-tracking (ET). The results were analysed overall, by gender (male and female) and by decision-making styles (rational and emotional decision-making).

7.4 INTERPRETATION OF RESULTS

In this section, the discussion continues to interpret the results as discussed in Chapter six. A summary of the results pertaining to each text message and the corresponding hypotheses can be viewed in Addendum K. In order to understand the results in greater depth, the neurophysiological responses towards each text message will be explained next, as well as the results specific to gender and decision-making styles.

7.4.1 Text one: Simplified statement – results interpretation

Text one, namely '*Thank you for your donation'*, is a simplified statement of gratitude thanking donors for their donation. The text message was identical for both non-profit organisations, *Cheetah Outreach* and *Reach for a Dream*.

7.4.1.1 GSR results interpretation: Simplified statement - Cheetah Outreach

An overview of the overall, male and female GSR results for text one (simplified statement) relating to *Cheetah Outreach* (NPO one) was interpreted. Significant deviations from the baseline indicated short-term activation or arousal amongst respondents. Text one produced a GSR response amongst all respondents regardless of their gender or decision-making style thus rejecting hypotheses $H_{101a,}$ $H_{301a,}$ $H_{302a,}$ H_{601a} and H_{602a} relating to *Cheetah Outreach*. Male respondents (GSR = 4.01) as well as emotional decision-makers (GSR = 4.32) showed the highest level of arousal. Consistent with the results reported by Shiv and Fedorikhin (1999) and the pre-test results reported

in the previous chapter of the current study, a higher number of male respondents indicated that they perceived their decisions to be rational rather than emotional.

Plant *et al.* (2000) provide evidence that males and females differ in their expression (Birnbaum *et al.,* 1980; Fabes & Martin, 1991; Johnson & Schulman, 1988). Literature relating to gender suggests that males tend to be selective processors that rely on heuristics, and simple decision-making rules that require little processing efforts. Females, alternatively, are known to be comprehensive processors who focus on detailed information (Meyers-Levy & Maheswaran, 1991; Darley & Smith, 1995).

As portrayed by text one, the simplicity of the message and its shortness in length allow the reader to absorb the meaning of the message without a significant amount of concentration and to respond to subtle cues. Individuals are able to process the entire message at a single glance. The message is coherent and easy to understand thus influencing the level of arousal and appealing to selective decision-makers and simple processors.

7.4.1.2 GSR results interpretation: Simplified statement - Reach for a Dream

An overview of the GSR results for text one (simplified statement) relating to *Reach for a Dream* (NPO two) was interpreted. Significant deviations from the baseline indicated short-term activation or arousal amongst respondents. The results for NPO two showed evidence that exposure to text one produced a GSR response amongst male respondents and rational decision-makers leading to the rejection of hypotheses H_{301a} and H_{601a} relating to *Reach for a Dream.* However, female respondents and emotional decision-makers did not experience arousal. Consistent with the results reported by Shiv and Fedorikhin (1999) and the pre-test results reported in the previous chapter of the current study, a higher number of male respondents indicated that they made decisions based on rational thinking. According to Meyers-Levy and Maheswaran (1991) males tend to be simple decision-makers, which explains the arousal experienced by male respondents and rational decision-makers in response to the simplified statement of text one.

7.4.1.3 EMG results interpretation: Simplified statement - Cheetah Outreach

The EMG results for text one (simplified statement) relating to *Cheetah Outreach* (NPO one) were interpreted. Significant deviations from the baseline indicated positive and negative emotional responses. The EMG results showed that females experienced positive emotional responses towards text one for *Cheetah Outreach*. Female respondents also experienced a significantly higher positive emotional response (EMG = 0.93) to text one in comparison to male respondents, leading to the rejection of hypothesis H_{401b}. According to the *post-hoc* focus group discussion, the results could indicate that male respondents made donations without expecting feedback, whereas females required the confirmation or acknowledgement of their donations from the non-profit

organisation. The results suggested that a simplified statement did not carry the same emotional meaning to males as it did to females, thus justifying the positive response from females.

In accordance with hypothesis $H_{501b,}$ the EMG responses towards text one were compared to the EMG responses towards all other text messages. An analysis of the results indicated significant differences between responses to text one and responses to text seven (generalised address) and text nine (message source) amongst the female respondents. A high positive emotional response was found towards text one (EMG = 0.93) whereas a negative emotional response towards text seven (EMG = -0.66) and text nine (EMG = -0.35) was found. It can be interpreted that female respondents preferred the simplified statement of gratitude rather than the general address and the message source. It is clear that the different message elements presented in the text messages influenced the EMG responses.

Text seven includes the phrase 'dear supporter'. According to Sela *et al.* (2012), subtle differences in wording in marketing communication affect consumer perceptions. More specifically, singular wording can imply information about a relationship a consumer has with a specific brand and consequently influence his or her perception or attitude towards that brand. This argument can also be applied to a non-profit context. The subtle change in the text message by adding 'dear supporter' to it, showed a significant difference in emotional responses amongst female respondents, thus causing negative emotions. It is possible that male and female respondents experienced the wording of text seven as impersonal and therefore reacted more favourably towards text one as the latter met the level of expectations of the female respondents.

Text nine makes use of a message source. Unfamiliarity with the message source among the female respondents could lead to confusion, thus eliciting a frown. The level of credibility of a source is important to consider when developing and designing an effective message (Clow *et al*., 2011). Source credibility refers to the level of perceived expertise and trust that is received by a source or provider of information (Kelman, 1961; Buda & Zheng, 2000; Dholakia & Sternthal, 1977; Domino, 2003). Considering that respondents might have been unfamiliar with the message source, a negative emotional response was detected.

According to Smith and Scott (1997), the information that is conveyed by a facial expression can reveal a number of affective states. The eyebrow frown accompanied by a number of activities by the mouth is believed to reflect various levels of unpleasantness. Smith (1989) interprets the eyebrow frown as a goal-orientated association with specific reference to an individual need to expand effort or cope with a certain situation. Cacioppo, Petty and Morris (1985) extend their understanding of an eyebrow frown beyond the association with unpleasantness, arguing that an eyebrow frown is a display of concentration. The results of the current study suggest that more complex text messages, such as text seven (generalised address) and text nine (message source), produced EMG results which indicated a frown. According to evidence by Cacioppo *et al.* 1985,

Smith (1989) and Smith and Scott (1997), a frown can be associated with an emotional state reflecting concentration. As a result of the length of text seven and text nine compared to text one, a higher level of concentration was required from females, thus justifying the negative EMG score in terms of females.

7.4.1.4 EMG results interpretation: Simplified statement - Reach for a Dream

An overview of the EMG results for text one (simplified statement) for *Reach for a Dream* (NPO two) was interpreted. Significant deviations from the baseline indicated positive or negative emotional responses. Overall, respondents experienced a significantly negative emotional response towards text one leading to the rejection of hypothesis H_{302b} relating to *Reach for a Dream*. According to Fabes and Martin (1991), females express sadness, fear and love more frequently than males. As a consequence of the association with suffering children, females may consider the act of donating as a more emotional process, thus indicating a negative emotional response. Perhaps the level of involvement and personal connection promoted a higher level of concentration amongst the female respondents, hence the dominance of the frown over the smile.

It is not yet known which exact emotions are linked to frowning, therefore it cannot be assumed that a negative emotional response necessarily points to emotions of sadness or dislike (Hager & Ekman, 1983). According to Smith and Scott (1997), the information that is conveyed by a facial expression can show a number of affective emotional states. Specific to a frown, Smith and Scott (1997) isolate emotional states pertaining to disgust and/or contempt, fear, sadness or anger. Smith (1989) interprets the eyebrow frown as a goal-orientated association with specific reference to an individual need to expand effort or cope with a certain situation.

It can be argued that the female respondents viewed text one in a more serious manner as the non-profit organisation appealed to their maternal instinct, thus enforcing a higher level of interest and concentration. For decades, the belief has existed that females are more emotionally inclined than men and it has become one of the foremost gender stereotypes (Rosenkrantz *et al.,* 1968; Ruble, 1983). It can be argued that *Reach for a Dream* represents a more emotional topic for females compared to males, therefore initiating a negative EMG response from females.

An analysis of the results indicated significant differences between EMG responses to text one (simplified statement) and EMG responses to text three (elaborate wording) amongst females and emotional decision-makers. Text three contains elaborate, descriptive wording thanking the respondents for their generous donations. As a result, female respondents reacted positively. *Reach for a Dream* specialises in supporting children with illnesses. Considering the negative associations with sick children, the results indicated that positive responses were experienced as the respondents were informed that their donation had ‘really made a difference’. The associations with the phrase assured the respondents that their contribution or donation had helped in

supporting a child or saving a life. Text one is a simple statement of gratitude; however, it is not informative or encouraging to respondents with regard to how their donation has made a difference.

There was a significant difference between responses to text one (simplified statement) and responses to text four (monetary numeric value) amongst the emotional decision-makers. According to Lindsay and Ah Yun (2003), messages require a certain level of factual and precise information to be considered as verifiable. Text four includes a monetary donative amount, specifically R500 given by the donor. Emotional decision-makers were encouraged by text four as the exact amount in Rands was given. Text four also provides credibility in that the non-profit organisation mentions the receipt of the total amount donated. The presence of a monetary amount thus provides tangibility that further reminds respondents the extent to which they have supported the cause. Emotional decision-makers felt content with their contribution, therefore experiencing a positive emotional response.

There was a significant difference between responses to text one and responses to text six amongst emotional decision-makers. Text six also makes use of a quantitative numeric value such as ’16 520’ children. Messages require a certain level of factual and precise information to be considered as verifiable (Lindsay & Ah Yun, 2003). Again, the text message adds tangibility and meaning by educating and informing the respondents with specific information regarding how many children have been supported with the help of their contribution. Additionally, a time frame of twelve months was indicated which reiterates statistical evidence that the organisation was indeed using the donations. From this result, it can be argued that emotional decision-makers are more involved in the donation process and require a higher level of feedback to feel content with the fact that their donation has been received and has made a positive difference.

There was a significant difference between responses to text one and responses to text two amongst the rational decision-makers. Text two is classified as a simple statement of gratitude; however, the name of the organisation *Reach for a Dream* (NPO two), is included in the message. Rational decision-makers were more favourable towards text two as the provision of the name of the non-profit organisation provides confirmation that their donation has been received by the intended organisation, in accordance with rational thinking. Rational decision-makers also reacted more favourably towards text six in comparison to text one.

In addition, there was a significant difference between responses to text one and responses to text nine overall, amongst females and rational decision-makers. Responses towards text nine were also positive. Text nine contains a message source followed by a simple statement of gratitude. Source credibility refers to the level of perceived expertise and trust that is received by a source or provider of information (Kelman, 1961; Buda & Zheng, 2000; Dholakia & Sternthal, 1977; Domino, 2003). Kulkarni and Gaulkar (2005) define expertise as “the perceived ability of the source to make

valid assertions", whereas trustworthiness is defined as "the perceived willingness of the source to make valid assertions".

The impact of a message source provides respondents with the confirmation that the children are well taken care of. The provision of a name adds tangibility and a sense of reality to the fact that there is a person in charge and who is able to take care of the children. Reference in the message to the 'manager' implies ownership and expertise. Respondents thus felt more convinced as they were informed to whom their contribution was given. As a result, a level of trust is established with reference to the message source in the text.

7.4.2 Text two: Simplified statement; non-profit specific – results interpretation

Text two, namely '*Thank you for donating to Cheetah Outreach/Reach for a Dream'*, is a simple statement of gratitude thanking donors for their donation to a specified non-profit organisation. The text message was identical for both NPO groups, except for the name of the NPO.

7.4.2.1 GSR results interpretation: Simplified statement; non-profit specific - Cheetah Outreach

The GSR results for text two (simplified statement; non-profit specific) relating to *Cheetah Outreach* (NPO one) were interpreted. Significant deviations from the baseline indicated short-term activation or arousal amongst respondents. It is evident that exposure to text two produced a GSR response amongst all respondents, despite their gender or decision-making styles. Male respondents (GSR = 4.37) as well as emotional decision-makers (GSR = 4.69) showed the highest level of arousal. Text two contains similarities to text one except for the addition of the non-profit name.

Eye-tracking data confirmed that most respondents focussed their attention towards the name of the non-profit organisation. The message's simplicity and shortness in length allowed the respondents to absorb the meaning of the message without a significant amount of concentration needed. Respondents were thus able to process the entire message at a single glance. Respondents were also encouraged by the fact that the non-profit organisation's name was mentioned, giving confirmation that the donation was received by the intended non-profit organisation. No other significant differences were found.

7.4.2.2 GSR results interpretation: Simplified statement; non-profit specific - Reach for a Dream

The GSR results for text two for *Reach for a Dream* (NPO two) were analysed. Significant deviations from the baseline indicated short-term activation or arousal amongst respondents.

Exposure to text two (simplified statement; non-profit specific) produced GSR results amongst male respondents and rational decision-makers in particular. Coinciding with the results reported by Shiv and Fedorikhin (1999) and the pre-test results in the previous chapter of the current study,

male respondents think more rationally. Therefore, higher GSR scores were reported by both male respondents and rational decision-makers. Furthermore, a higher number of female respondents indicated that they made decisions using emotional thinking styles. *Reach for a Dream* supports children with life-threatening illnesses. According to the *post-hoc* focus group discussion, the association with the non-profit organisation and children with illnesses would not elicit arousal amongst females and emotional decision-makers. No other significant differences between text messages were found.

7.4.2.3 EMG results interpretation: Simplified statement; non-profit specific - Cheetah Outreach

The EMG results for text two (simplified statement; non-profit specific) relating to *Cheetah Outreach* (NPO one) were interpreted. Significant deviations from the baseline indicated positive or negative emotional responses. There were no significant deviations from the baseline when assessing the EMG results for text two. Respondents did not experience significant emotional responses towards text two (simplified statement; non-profit specific).

7.4.2.4 EMG results interpretation: Simplified statement; non-profit specific - Reach for a Dream

The EMG results for text two for *Reach for a Dream* (NPO two) found significant deviations from the baseline, indicating positive or negative emotional responses. The EMG responses towards text two were compared to the EMG responses towards all other text messages relating to *Reach for a Dream*. An analysis of the results indicated significant differences between the EMG responses to text two and to text five (collective monetary values) and text seven (generalised address) overall, leading to the rejection of hypothesis H_{202b} relating to *Reach for a Dream.*

Text five makes use of a collective monetary donative amount in Rands. Overall, respondents experienced a higher negative emotional response towards text five in comparison to text two. Darley and Smith (1995) tested the *Selectivity Model,* confirming that females are comprehensive information processors who respond to subtle cues. Alternatively, Meyers-Levy and Maheswaran (1991) and Darley and Smith (1995) believe that males are selective information processors, who do not respond to subtle cues. Arguably, the length of text five required a higher level of concentration and thinking, thus justifying a frown. According to Genco *et al.* 2013, liking or positive emotional valence is influenced and enhanced by processing fluency. It is thus possible that shorter, simpler messages that are easy to process are more effective, specifically amongst males and rational decision-makers.

Text seven (generalised address), however, makes use of the word ‘supporter’. According to Sela *et al.* (2012), subtle differences in wording in marketing communication may affect consumer perceptions. Respondents experienced a marginally higher positive emotional response towards text two (EMG = 0.23) than text seven (EMG = -0.22). The subtle change in the message by adding ‘dear supporter’, showed a significant difference in the emotional responses amongst all

respondents, thus causing a negative emotional response. It is possible that respondents experienced the message as impersonal and therefore reacted more favourably towards text two. In conjunction with text five, the length of text seven may have encouraged higher levels of thinking and more reading effort. As a result, negative emotional responses were detected by means of the expression of a frown. Research by Smith and Scott (1997) and Cacoppio *et al.* (1985) support these inferences.

7.4.3 Text three: Elaborate wording – results interpretation

Text three, namely '*Thank you for your generous donation to Cheetah Outreach/Reach for a Dream*. *We value your support – it really makes a difference!'* is an elaborate statement of gratitude, thanking donors for their donation to the specific non-profit organisation. The text makes use of descriptive wording such as 'generous' and 'really' by the non-profit organisation to the donor, emphasising the importance of the donation.

The message is twofold. Firstly, it informs the donor that their donation is valued and secondly, that the donation has made a difference. The text message was identical for both NPO groups, except for the name of the NPO.

7.4.3.1 GSR results interpretation: Elaborate wording - Cheetah Outreach

The GSR results for text three for *Cheetah Outreach* (NPO one) were reviewed. Significant deviations from the baseline indicated short-term activation or arousal amongst respondents. Exposure to text three (elaborate wording) produced a GSR response amongst all respondents, despite their gender or decision-making styles. Male respondents (GSR = 2.90) as well as emotional decision-makers (GSR = 2.70) showed the highest levels of arousal.

Text three is an elaborate message of thank you's that uses descriptive adjectives to emphasise gratitude towards the donor on behalf of the non-profit organisation. Female respondents did not experience a significant level of arousal towards text three. According to the pre-test results, female respondents were less familiar with *Cheetah Outreach* than male respondents. It can thus be assumed that the low level of arousal among female respondents could be as a result of their unfamiliarity with the non-profit organisation.

7.4.3.2 GSR results interpretation: Elaborate wording - Reach for a Dream

The GSR results for text three for *Reach for a Dream* (NPO two) were interpreted. Significant deviations from the baseline indicated short-term activation or arousal amongst respondents. Exposure to text three (elaborate wording) produced a GSR response amongst male respondents and rational decision-makers. Consistent with the results by Shiv and Fedorikhin (1999) and the pre-test results from the previous chapter of the current study, male respondents think more

rationally. Therefore, higher GSR scores were observed in terms of text three for both males and rational decision-makers.

Research investigating the differences in skin resistance levels between male and female athletes found that the degree of the increase in skin resistance during physical training was higher in males than in females (Ichinose-Kuwahara, Inoue, Iseki, Hara, Ogura, & Kondo, 2010). Based on this evidence, an inference can be made for the current study's results, namely that the higher GSR scores among males could be attributed to the physiological differences between males and females.

7.4.3.3 EMG results interpretation: Elaborate wording - Cheetah Outreach

The EMG results for text three for *Cheetah Outreach* (NPO one) found significant deviations from the baseline, indicating positive and negative emotions amongst respondents. There were no significant deviations from the baseline when assessing the EMG results for text three. However, there were significant differences between the EMG scores for text three (EMG = -0.18) and text eight (EMG = 0.46) amongst females, leading to the rejection of hypothesis H_{506b}. In line with the low levels of short-term arousal, female respondents experienced negative emotional responses towards text three. Additionally, female respondents were more positive towards text eight (elaborate generalised address), which contains a simple statement of gratitude with a generalised address, 'kind supporter'. A detailed analysis of the responses towards text eight is included later in the chapter.

A significant difference was detected amongst the responses of rational decision-makers towards text three (EMG = -0.32) compared with text four (EMG = 0.40). In line with the aforementioned results, rational decision-makers also responded less favourable towards text three. Pre-test results highlighted that rational decision-makers were less familiar with *Cheetah Outreach*, thereby showing a negative emotional response, which was detected by a frown. Their unfamiliarity with *Cheetah Outreach* may have influenced the rational decision-makers' responses in that a higher level of concentration was required, causing them to frown (Cacioppo *et al*., 1985). Eye-tracking results confirmed the focused attention of most respondents on the name of the non-profit organisation, *Cheetah Outreach*. According to the pre-test results, rational decision-makers expressed a low level of familiarity towards Cheetah Outreach. It can be concluded that the level of familiarity with a non-profit organisation's name may influence the emotional responses of individuals towards marketing material communicated by the non-profit organisation.

Text four makes use of monetary numeric values to which respondents expressed a positive emotional response. An in-depth discussion of text four's message elements features later in the chapter.

7.4.3.4 EMG results interpretation: Elaborate wording - Reach for a Dream

The EMG results for text three for *Reach for a Dream* (NPO two) were interpreted. Significant deviations from the baseline indicated positive or negative emotions amongst respondents. The EMG responses towards text three were compared to the EMG responses towards all other text messages relating to *Reach for a Dream*. An analysis of the results indicated significant differences between the responses to text three (elaborate wording) and the responses to text one (simplified statement) amongst females, leading to the rejection of hypothesis H_{506b} relating to *Reach for a Dream*. Overall, respondents were more positive towards text three (EMG = 0.38) than text one (EMG = -0.44).

Text three contains descriptive wording thanking the respondents for their generous donations. In contrast with previous results that female respondents did not favour text three relating to *Cheetah Outreach* (NPO one), the responses towards *Reach for a Dream* illustrated a positive emotional response towards text three when compared to text one. As concluded by the *post-hoc* focus group discussion, females may experience negative emotions towards text messages referring to *Reach for a Dream* as a result of the connotation with ill children. Female respondents were more positive towards text three as the elaborate wording assured them that their donation had assisted the children. The content of the message was thus transformed into a positive experience.

Additionally, the *Selectivity Model* suggests that females are able to process subtle cues (Darley & Smith, 1995). In the case of text three, subtle cues refer to the elaborate wording that was used as part of the message appeal to females.

7.4.4 Text four: Monetary numeric value – results interpretation

Text four, namely '*Thank you for donating R500 to Cheetah Outreach/Reach for a Dream!'* is a statement of gratitude thanking donors for their donation by making use of a numeric monetary value. The text message was identical for both NPO groups except for the name of the NPO represented.

7.4.4.1 GSR results interpretation: Monetary numeric value - Cheetah Outreach

The GSR results for text four relating to *Cheetah Outreach* (NPO one) showed significant deviations from the baseline, indicating short-term activation or arousal amongst respondents. It is evident that exposure to text four produced a GSR response amongst male respondents and rational decision-makers. Male respondents (GSR = 3.73) as well as rational decision-makers (GSR = 2.66) showed the highest level of arousal.

Text four makes use of the monetary numeric amount donated by the donor. Significant responses amongst females and emotional decision-makers were not detected in review of text four results. According to the World Economic Forum (WEF) 2013 Global Gender Gap Report, the sub-Saharan

Africa Region has a gender pay gap of 34%, suggesting that women effectively earn less than men (World Economic Forum, 2013). Against this background, it can be assumed that females were less aroused or excited about the amount of money that was donated. Due to the respondents' unfamiliarity with *Cheetah Outreach*, a donation of R500 could be seen as a substantially large monetary amount to donate to a non-profit organisation. Given the gender gap in earnings alluded to earlier, the amount donated could be more meaningful to female respondents than males. Furthermore, the act of giving may be more of an economic concern to females than social interest (Folse, Niedrich & Grau, 2010).

7.4.4.2 GSR results interpretation: Monetary numeric value - Reach for a Dream

The GSR results for text four relating to *Reach for a Dream* (NPO two) were analysed. Significant deviations from the baseline indicated short-term activation or arousal amongst the respondents. Exposure to text four produced a GSR response amongst male respondents and rational decision-makers leading to the rejection of hypotheses $H_{104a,}$ H_{307a} and H_{607a} relating to *Reach for a Dream*. Again, female and emotional decision-makers did not experience short-term arousal based on the argument that the donated monetary amount of R500 was viewed as substantial by them. As previously mentioned, women in sub-Sahara African countries earn 34% less than men (World Economic Forum, 2013). Therefore, the monetary amount mentioned in the message may be more meaningful for women, thus preventing significant short-term arousal among female respondents.

7.4.4.3 EMG results interpretation: Monetary numeric value - Cheetah Outreach

The EMG results for text four for *Cheetah Outreach* (NPO one) were reviewed. Significant deviations from the baseline indicated positive or negative emotions amongst respondents. Exposure to text four (monetary numeric value) produced an EMG response amongst rational decision-makers. Those respondents who were identified as rational decision-makers, demonstrated a positive emotional response (EMG = 0.40). Arguably, the mentioning of the substantial donation of R500 towards *Cheetah Outreach*, could comfort respondents by the fact that the non-profit organisation had acknowledged their donation in a personal manner. Additionally, according to the pre-test results, rational decision-makers were predominantly male respondents. Finally, given the earlier statement that men earn higher salaries than women in sub-Saharan African countries (World Economic Forum, 2013), the donation amount of R500 indicated in text four was acceptable to male respondents and rational decision-makers.

Furthermore, in order for a message to be perceived as credible, Lindsay and Ah Yun (2003) clarify that the message should contain a certain level of factual and precise information for verification. Quantifying a donor's responsibility encourages a feeling of connectedness, thus influencing the donor's level of persuasion (Smith & Berger, 1996; Petty & Cacioppo, 1979). In line with these authors' findings, rational decision-makers showed a positive response towards the precise amount donated and the factual information given in the message.

There were a number of significant differences between text messages, specifically text four, relating to *Cheetah Outreach*. Overall, there were significant differences between text four (EMG = 0.25) and text seven (EMG = -0.34) and text nine (EMG = -0.22) respectively. It is clear that respondents experienced a positive emotional response towards text four, and negative emotional responses towards text seven and text nine. As mentioned previously, text four uses a numeric monetary amount of R500 that has been donated to *Cheetah Outreach*. In a comparison between text four and text seven, a significant difference between the emotional responses towards the messages was detected. Text seven makes use of a generic thank you message, namely '*Dear supporter, thank you for your donation to Cheetah Outreach'.* Overall, respondents were more favourable towards text four that includes a numeric value. Also, the significant difference between responses to text four and text seven concur with the emotional responses expressed amongst female respondents.

The inclusion of precise and factual information elicited a positive emotional response towards text four, whereas respondents experienced negative emotional responses towards text seven. Text four's message provides accurate information whilst text seven's generic approach appears not to appeal to respondents directly, resulting in a negative emotional response. Eye-tracking results confirmed these outcomes indicating that the majority of respondents focussed their attention towards the numeric amount. It can thus be argued that the EMG results were influenced by the numeric value, supporting the aforementioned inferences pertaining to factual information.

Text nine also yielded negative emotional responses. Text nine makes use of a message source thanking donors for their donation on behalf of *Cheetah Outreach*. A lack of familiarity with the message source 'Liesl Smith' created confusion and required a higher level of concentration among respondents, which were detected by the appearance of a frown (Cacioppo *et al*., 1985; Smith & Scott, 1997). A negative emotional response was thus evident in comparison to text four.

Male respondents were significantly more positive towards text four in comparison to text ten (narrative statement). According to the pre-test results, male respondents believed that they were rational decision-makers. The factual information granted a higher positive emotional response because the respondents were assured that their full donation amount was received. Lindsay and Ah Yun (2003) provide evidence to support the inference relating to the association between factual information and the verification of a message. Literature with a gender-specific focus provides evidence that males tend to be selective processors that rely on heuristics, and simple decision-making rules that require little processing efforts (Meyers-Levy & Maheswaran, 1991; Darley & Smith, 1995). Given this evidence that the length and detail of a message do not appeal to males, the negative emotional responses among male respondents towards text ten were apparent.

7.4.4.4 EMG results interpretation: Monetary numeric value - Reach for a Dream

The EMG results for text four for *Reach for a Dream* (NPO two) were reviewed. Significant deviations from the baseline indicated positive and negative emotional responses. There were significant differences between text four (monetary numeric value) and text nine (message source) amongst rational decision-makers for *Reach for a Dream*, leading to the rejection of hypothesis $H_{807b.}$

Although male respondents experienced positive emotional responses towards text four, perhaps when rational thinking is considered, male respondents were less emotionally attached to the idea of donating R500 to *Reach for a Dream*. According to the *post-hoc* focus group discussion, the association with children and the maternal instinct among females and emotional decision-makers could result in females responding more positively than their male counterparts. However, male respondents and rational decision-makers are less emotionally inclined, thus justifying rational decision-makers negative responses towards text four.

Emotional decision-makers responded significantly more positive towards text four in comparison to text one, resulting in the rejection of hypothesis H_{808b} relating to *Reach for a Dream*. An explanation with regard to this result can be reviewed under the discussion of text one earlier in this chapter. In addition, the eye-tracking heat maps confirmed that the majority of respondents focused their attention on the numeric value of R500 in text four.

7.4.5 Text five: Collective monetary numeric value – results interpretation

Text five, namely '*Thanks to your donation we have managed to raise R250 000 for Cheetah Outreach/Reach for a Dream. Thank you for making a difference!'*, is a statement of gratitude, thanking donors for their donation by means of the expression of a collective monetary amount in Rands. The text message is identical for both NPO groups except for the name of the NPO.

7.4.5.1 GSR results interpretation: Collective monetary numeric value - Cheetah Outreach

The GSR results for text five for *Cheetah Outreach* (NPO one) were interpreted. Significant deviations from the baseline indicated short-term activation or arousal amongst respondents. Exposure to text five (collective monetary numeric value) produced a GSR response amongst male respondents, rational decision-makers and emotional decision-makers. Male respondents (GSR = 3.64) as well as emotional decision-makers (GSR = 4.80) showed the highest level of arousal. The eye-tracking data confirmed that attention was given to the collective monetary value of R250 000, by the majority of the respondents, thus confirming significant levels of arousal as a result of the collective monetary numeric value.

7.4.5.2 GSR results interpretation: Collective monetary numeric value - Reach for a Dream

The GSR results for text five for *Reach for a Dream* (NPO two) were reviewed. Significant deviations from the baseline indicated short-term activation or arousal amongst the respondents. Both female and emotional decision-makers experienced the highest levels of arousal towards text five. The *post-hoc* focus group discussion concluded that female and emotional decision-makers have a stronger association with children represented by *Reach for a Dream,* thus justifying their significantly higher positive response in comparison to the male respondents. In addition, eye-tracking data confirmed that the majority of respondents focussed their attention on the collective monetary numeric value of R250 000, supporting the notion that the presence of the collective monetary numeric value in the message affected the levels of arousal.

The GSR results suggest that respondents were aroused due to the provision of evidence regarding their contribution towards an overall, specified monetary amount. Significant differences were detected between text five and text seven amongst female responses. Respondents showed higher levels of arousal towards text five. McCroskey (1969) defines evidence as factual statements, objects or opinions, while messages with statistical information can be perceived as more informative and verifiable (Hardy, 2011; Lindsay & Ah Yun, 2003). The message of text five provides further evidence that the contribution has been valued by the non-profit organisation and that it was going towards the correct cause. This evidence thus supports the inferences regarding text five and the levels of arousal amongst respondents.

7.4.5.3 EMG results interpretation: Collective monetary numeric value - Cheetah Outreach

The EMG results for text five for *Cheetah Outreach* (NPO one) were reviewed. Significant deviations from the baseline indicated positive or negative emotional responses. There were no significant deviations from the baseline when assessing the EMG results for text five. However, there was a significant difference between responses between text five and text seven and text nine leading to the rejection of hypothesis H_{510b}. Female respondents expressed positive emotions towards text five. According to Chang and Lee (2009) non-profit organisations are beginning to make use of statistical evidence of public welfare to motivate donors and create sympathy. Greene and Brin (2003) assert that factual contents are verifiable and more effective in creating a change in attitude from the reader as the information is perceived as more realistic. Verifiable messages rely on elements to be precise and specific (Lindsay & Ah Yun, 2003).

In line with the aforementioned inferences, the eye-tracking data confirmed that the collective monetary numeric value in text five specifically influenced the emotional responses of females. It can be further postulated that the numeric evidence provided female respondents with confirmation that the donated money was being recorded and calculated, thereby verifying the appropriate actions and responsibilities of the non-profit organisation. Females are also believed to be comprehensive processors and respond to subtle cues (Darley & Smith, 1995). Although the

message is lengthy, the female respondents were able to comprehend the message by paying attention to the detail, thus responding in a positive emotional manner.

7.4.5.4 EMG results interpretation: Collective monetary numeric value - Reach for a Dream

The EMG results for text five for *Reach for a Dream* (NPO two) were interpreted. Significant deviations from the baseline indicated positive or negative emotional responses. Text five makes use of a collective monetary donated amount in Rands. Respondents experienced a higher negative emotional response towards text five in comparison to text nine. The result remained consistent among male respondents and rational decision-makers. It can be argued that the length of text five required a higher level of concentration and thinking thus eliciting a frown (Smith & Scott, 1997).

It can also be speculated that the shorter, simpler message of text nine is more effective, specifically amongst male respondents who are selective processors, according to the *Selectivity Model* by Darley and Smith (1995). Previously, it has been stated that male respondents are more rational, responding more favourably towards factual information. In the current study, the EMG results indicated negative emotional responses amongst male and rational decision-makers. According to Adolphs (2011), facial expressions are categorised into distinct groups representing specific emotions. However, Russel and Bullock (1986) infer that the classifications between the emotion categories, in turn, can be indistinct. Russel and Fehr (1987) assert that the classification of the emotion displayed can be dependent on the contextual relations to other expressions.

Considering the contextual relations of text five towards *Reach for a Dream*, a number of possible implications can be discussed. Respondents expressed significant negative emotional responses towards text five in comparison to the positive emotional responses towards text five relating to *Cheetah Outreach*. Smith and Scott (1997) suggest a number of emotional conditions pertaining to a frown, namely disgust and/or contempt, fear, sadness or anger.

Smith (1989), however, interprets the eyebrow frown as a goal-orientated association with specific reference to an individual need to expand effort or to cope with a certain situation. It is clear that the inferences by Russel and Bullock (1986) relating to indistinct clarity in identifying specific emotions are evident in the current study. Thus, taking into account the negative emotional responses expressed by respondents towards text five, only speculations regarding the underlying meaning of the negative result can be offered. According to the *post-hoc* focus group conclusions, the associations with *Reach for a Dream* and ill children can be seen as a reason behind the negative emotional responses. Alternatively, the length of the message may have encouraged higher levels of concentration as illustrated by a frown. The negative results were consistent amongst all respondent groups.

7.4.6 Text six: Factual quantitative information – results interpretation

Text six, namely '*Your donation has helped us to save 150 cheetahs in the past 12 months!'/ your donation has helped us to support 16 250 children in the past 12 months!'*, is a feedback message that informs donors on how their support has made a difference by using specific and factual information that is expressed numerically. The text message is identical for both NPO groups except for the factual numeric information included.

7.4.6.1 GSR results interpretation: Factual, quantitative information - Cheetah Outreach

The GSR results for text six for *Cheetah Outreach* (NPO one) were reviewed. Significant deviations from the baseline indicated short-term activation or arousal amongst the respondents. It is evident that exposure to text six produced significant GSR scores amongst respondents. Male respondents (GSR = 4.02) as well as emotional decision-makers (GSR = 4.03) showed the highest levels of arousal. Text six contains factual, quantitative information thus adding additional substance and meaning to the message that, in turn, creates arousal (Lindsay & Ah Yun, 2003).

The inclusion of numeric information appealed to all respondents as the numbers add an additional element of visualisation, whilst also providing a universal understanding and verifiability of the information. The eye-tracking results indicated that most respondents focused their attention on the number '150', thus confirming that numeric information attract attention. No other significant differences were found.

7.4.6.2 GSR results interpretation: Factual, quantitative information - Reach for a Dream

The GSR results for text six for *Reach for a Dream* (NPO two) were reviewed. Significant deviations from the baseline indicated short-term activation or arousal amongst respondents. Exposures to text six (factual, quantitative statement) produced a GSR response amongst respondents, except for emotional decision-makers. Emotional decision-makers were not aroused by text six as based on the *post-hoc* focus group discussion, the associations with sick children affected respondents avoiding significant levels of arousal. The text message is factual whereby the number of children that have been supported, namely 16 520, is indicated in the message. As mentioned earlier, messages with statistical information can be perceived as more informative and verifiable (Hardy, 2011; Lindsay & Ah Yun, 2003), therefore the evidence in text six provides substance and further understanding to influence arousal amongst respondents.

7.4.6.3 EMG results interpretation: Factual, quantitative information - Cheetah Outreach

The EMG results for text six for *Cheetah Outreach* (NPO one) were reviewed. Significant deviations from the baseline indicated positive or negative emotional responses. There were no significant deviations from the baseline when assessing the EMG results for text six (factual, quantitative statement). However, there was a significant difference between text six and text nine

(message source) leading to the rejection of hypothesis H_{512b} relating to *Cheetah Outreach*. Female respondents responded more positively towards text six than text nine. The eye-tracking results revealed that attention was given to the numeric value, '150', by the majority of respondents. It can therefore be assumed that the positive emotional responses are a reflection of the numeric element. Text nine makes use of a message source to which respondents expressed negative emotions. A discussion regarding text nine is included later in this chapter. No other significant differences were found.

7.4.6.4 EMG results interpretation: Factual, quantitative information - Reach for a Dream

The EMG results for text six for *Reach for a Dream* (NPO two) were reviewed. Significant deviations from the baseline indicated positive or negative emotional responses. In accordance with hypothesis $H_{811b,}$ the EMG responses towards text six were compared to the EMG responses towards all other text messages amongst rational decision-makers. An analysis of the results indicated significant differences between the responses to text six and to text one. The results of text one were discussed earlier in the chapter. Based on the evidence, and supported by the eye-tracking data and research by Hardy (2011) and Lindsay and Ah Yun (2003), respondents felt informed and educated regarding the numeric information included in text six, thus responding with a positive emotional response.

7.4.7 Text seven: Generalised address – results interpretation

Text seven, namely '*Dear supporter, thank you for your donation to Cheetah Outreach/Reach for a Dream*, is a simple statement of gratitude with a generic address to donors thanking them for their donation. The text message is identical for both NPO groups except for the name of the NPO.

7.4.7.1 GSR results interpretation: Generalised address - Cheetah Outreach

The GSR results for text seven for *Cheetah Outreach* (NPO one) were interpreted. Significant deviations from the baseline indicated short-term activation or arousal amongst respondents. Exposure to text seven produced a GSR response amongst respondents, specifically male respondents and rational decision-makers. Male respondents (GSR = 2.76) as well as rational decision-makers (GSR = 2.53) showed the highest level of arousal. Text seven is simple and short allowing individuals to process and understand the meaning. The message is coherent thus appealing to selective processors, namely males and rational decision-makers thereby influencing the levels of arousal. No other significant differences were found.

7.4.7.2 GSR results interpretation: Generalised address - Reach for a Dream

The GSR results for text seven for *Reach for a Dream* (NPO two) were examined. Significant deviations from the baseline indicated short-term activation or arousal amongst the respondents. Exposure to text seven produced a GSR response amongst female respondents. A higher number

of female respondents indicated in the pre-test data that they believed they made decisions based on their emotions. According to the focus group discussion, the inclusion of ‘dear supporter’ as a generalised address appealed to females as they experienced a feeling of personalisation. Considering the association with children and the maternal instinct projected from females, females were given further assurance that their donation made a difference. No other significant differences between responses to the text messages were found.

A significant difference between text seven and text five was detected amongst respondents overall and amongst females. Respondents experienced a significantly higher arousal towards text five than text seven. The message of text seven can be classified as impersonal as a result of the phrase ‘dear supporter’ in comparison to the numeric elements used in text five. A discussion regarding the effect of the numeric value in text five was discussed earlier in this chapter. Therefore, based on previous inferences, respondents displayed higher levels of arousal towards text five as a result of the factual information included in the message by using numeric monetary values.

7.4.7.3 EMG results interpretation: Generalised address - Cheetah Outreach

The EMG results for text seven for *Cheetah Outreach* (NPO one) were interpreted. Significant deviations from the baseline indicated positive or negative emotional responses. According to hypothesis H_{107b} relating to *Cheetah Outreach*, respondents experienced negative emotional responses towards text seven. More specifically, significant negative emotional results were detected amongst female respondents and rational decision-makers. According to the eye-tracking heat map analysis, respondents focused their attention on the word ‘supporter’ in the introductory phrase.

With text seven the element of a generalised address to donors was tested. However, the results indicated that the use of the phrase ‘dear supporter’ elicited negative emotional responses from respondents. A suggestion from the focus group discussion was that respondents were left to feel overly committed to the non-profit organisation. According to Sela *et al.* (2012), subtle differences in wording in marketing communication may affect consumer perceptions. More specifically, singular wording may imply information about a relationship a consumer has with a specific brand and consequently influence the consumer’s perception or attitude towards that brand. According to the *post-hoc* focus group conclusions, the word ‘supporter’ may have created the impression that the non-profit organisation was expecting continuous donations and commitment from the donors, ‘forcing’ them into future support.

Although there was a significant difference between male and female responses towards text seven, both responses were negative. Female respondents showed a higher negative response towards text seven. According to Meyers-Levy and Maheswaran (1991), females are comprehensive processors. The underlying reason for the result suggests that female respondents

focused on the message in more detail, attending to the message for a longer period of time. Therefore a higher negative emotional response was recorded among females.

Additionally, there were significant differences between text seven and text four amongst respondents overall. A discussion involving text four was provided earlier in the chapter. To summarise, text four makes use of numeric monetary values that influenced respondents positively. Again, respondents did not react favourably towards text seven as a result of the generalised address and use of the word 'supporter'. Significant differences in responses were also identified between text seven and text one, text five, text six and text eight amongst females. In all cases, female respondents showed negative emotional responses towards text seven. Respondents detected that the message was generic because of the impersonal word 'supporter'. Perhaps it would have been advised for the non-profit organisation to address the donor directly, and by doing so, expressing a higher level of interest with the possibility of establishing a relationship.

7.4.7.4 EMG results interpretation: Generalised address - Reach for a Dream

The EMG results for text seven for *Reach for a Dream* (NPO two) were analysed. Significant deviations from the baseline indicated positive or negative emotional responses. The EMG responses towards text seven were compared to the EMG responses towards all other text messages relating to *Reach for a Dream*. The results indicated significant differences between responses to text seven and responses to text two and text nine amongst respondents overall. There was also a significant difference in the responses between text seven and text nine amongst males, leading to the rejection of hypothesis H_{613b}. Overall, respondents expressed negative emotional responses towards text seven.

Similarities in message content exist between text two and text seven. However, the change in the wording in text seven by adding 'dear supporter' showed a significant difference in emotional responses amongst all respondents, causing negative emotions. Research by Sela *et al.* (2012) supports the above inference by suggesting that subtle differences in wording in marketing communication may affect perceptions. It is possible that respondents experienced the message in text seven as impersonal and therefore reacted more favourably towards text two.

7.4.8 Text eight: Elaborate generalised address – results interpretation

Text eight, namely '*Dear kind supporter, thank you for your donation to Cheetah Outreach/Reach for a Dream*, is a simple statement of gratitude with a generic, elaborate address to donors thanking them for their donation. The text message is similar to text seven, however, the word 'kind' is included in the opening phrase. The text message is identical for both NPO groups except for the name of the NPO represented.

7.4.8.1 GSR results interpretation: Elaborate generalised address - Cheetah Outreach

The GSR results for text eight for *Cheetah Outreach* were interpreted. Significant deviations from the baseline indicate short-term activation or arousal amongst respondents. Exposure to text eight produced a GSR response amongst all respondent groups, except for female respondents. Male respondents (GSR = 3.07) as well as emotional decision-makers (GSR = 2.63) showed the highest levels of arousal. Text eight contains similarities to text seven except for the addition of the descriptive adjective 'kind'. The eye-tracking data confirmed that the focus of most respondents was on the word 'kind', in addition to the remaining part of the message. Therefore it cannot be assumed that the levels of arousal were only influenced by the word 'kind'. However, a significant difference was detected between text seven and text eight. Text seven is identical to text eight apart from the use of the word 'kind'. It can be assumed that the use of the word 'kind' significantly influenced the respondents according to the GSR score comparisons between texts.

7.4.8.2 GSR results interpretation: Elaborate generalised address - Reach for a Dream

The GSR results for text eight for *Reach for a Dream* (NPO two) were reviewed. Significant deviations from the baseline indicated short-term activation or arousal amongst respondents. Exposure to text eight produced a GSR response amongst male respondents and rational decision-makers. The message is simple and easy to process thereby appealing to rational thinkers, especially male respondents otherwise referred to as selective processors (Meyers-Levy & Maheswaran, 1991).

7.4.8.3 EMG results interpretation: Elaborate generalised address - Cheetah Outreach

The EMG results for text eight for *Cheetah Outreach* (NPO one) were interpreted. Significant deviations from the baseline indicated positive and negative emotional responses. Overall, text eight EMG results indicated significant differences between text messages. There was a significant difference between text eight and text nine in that respondents were more positive towards text eight. Additionally, amongst the female respondents, positive emotional responses towards text eight were detected, in comparison with their responses to text three, text seven and text nine.

There was a significant difference between text seven and text eight. The eye-tracking results indicated that respondents focused their attention on the word 'kind supporter', therefore it can be assumed that the difference in results was influenced by the additional change in the wording. As mentioned earlier, Sela *et al.* (2012), believe that subtle differences in wording in marketing communications may affect consumer perceptions. This evidence supports the inference that respondents were influenced by the word 'kind'. As outlined previously, respondents showed high negative emotional responses towards text seven.

7.4.8.4 EMG results interpretation: Elaborate generalised address - Reach for a Dream

The EMG results for text eight for *Reach for a Dream* (NPO two) were reviewed. Significant deviations from the baseline indicated positive or negative emotion. There were no significant deviations from the baseline when the EMG scores for responses towards text eight were measured. Additionally, there were no significant differences between the text messages when compared with text eight. Text eight did not cause significant positive or negative emotional responses amongst respondents as a result of their exposure to text eight relating to *Reach for a Dream*.

7.4.9 Text nine: Message source – results interpretation

Text nine, namely '*Message from Liesl Smith (Cheetah Outreach Manager/Reach for a Dream Manager): 'Thank you for your donation to Cheetah Outreach/Reach for a Dream'*, is a statement of gratitude thanking donors for their donation, making use of a message source, namely the manager, on behalf of the non-profit organisation. The text message is identical for both NPO groups except for the name of the NPO represented.

7.4.9.1 GSR results interpretation: Message source - Cheetah Outreach

The GSR results for text nine for *Cheetah Outreach* (NPO one) were reviewed. Significant deviations from the baseline indicated short-term activation or arousal amongst respondents. Exposure to text nine (message source) produced a GSR response amongst respondents. Female respondents (GSR = 2.78) as well as rational decision-makers (GSR = 2.75) showed the highest levels of arousal.

Text nine's feedback message uses a message source by including a spokesperson who acts on behalf of the non-profit organisation. It is clear from the GSR results for *Cheetah Outreach* that the presence of a message source caused significant arousal amongst respondents. The eye-tracking results further supported the interpretation pertaining to the specific influence of the message source. According to the eye-tracking heat maps, results indicated that respondents focused their attention on the introduction of the message source, namely 'Liesl Smith (*Cheetah Outreach* Manager)'. The GSR results can be associated with the wording on which the majority of the respondents focused their attention, in accordance with the interpretation of the heat maps.

7.4.9.2 GSR results interpretation: Message source - Reach for a Dream

The GSR results for text nine for *Reach for a Dream* (NPO two) were reviewed. Significant deviations from the baseline indicated short-term activation or arousal amongst respondents. Text nine produced a GSR response amongst respondents, specifically amongst female respondents and emotional decision-makers. According to the eye-tracking heat maps, the results denoted that respondents focused their attention on the introduction of the message source, namely 'Liesl Smith

(*Reach for a Dream* Manager)'. Again, the GSR results can be associated with the wording on which the majority of respondents focused their attention. No other significant differences in responses between text messages were found.

7.4.9.3 EMG results interpretation: Message source - Cheetah Outreach

The EMG results for text nine for *Cheetah Outreach* (NPO one) were examined. Significant deviations from the baseline indicated positive or negative emotional responses. The results indicated a significant deviation from the baseline amongst female respondents, showing a negative emotional response to text nine. Additionally, there were significant differences between responses between text nine and text one, text four, text five, text six and text eight. Overall, respondents were less favourable towards text nine, illustrated by the negative emotional responses.

Text nine makes use of a message source, Liesl Smith who is introduced as the manager of the non-profit organisation. The pre-test results indicated that respondents were unfamiliar with *Cheetah Outreach*, thus justifying their unfamiliarity with the message source as well. The eye-tracking results confirmed that focused attention was given by most respondents towards the name in the introductory phrase. This result thus explained the negative emotional responses towards text nine. A study by Smith (1989) examined the emotional expressions decoded by a smile and a frown. The results showed that the negative emotional results indicated by components of the facial muscles did not display any correlation to pleasantness.

Based on the aforementioned evidence, speculation regarding the level of familiarity with the non-profit organisation as well as the message source interfered with the emotional responses towards text nine. Research suggests that there are a number of factors that may affect the relationship between the message and its persuasive appeal. Such factors can be termed as mediating or moderating variables. A few examples include message credibility (Lindsay & Ah Yun, 2003), involvement and prior attitudes (Reinhart *et al.,* 2007). Despite the fact that the communicator of the message is known to be an important message variable in communication literature, it should be noted that the credibility of the message content could be a determining factor in individual perceptions (Lindsay & Ah Yun, 2003).

According to Genco *et al.* (2013), liking or positive emotional valence is influenced and enhanced by familiarity and processing fluency. According to Domino (2003), information that individuals gain from a source can influence certain opinions and have a positive effect on an individual. Considering that the respondents were not familiar with the message source, a negative emotional response was observed.

7.4.9.4 EMG results interpretation: Message source - Reach for a Dream

The EMG results for text nine for *Reach for a Dream* (NPO two) were interpreted. Significant deviations from the baseline indicated positive or negative emotional responses. There were

significant deviations from the baseline when the EMG results overall and amongst rational decision-makers were analysed. Respondents illustrated positive emotional responses towards text nine. In addition, text five and text seven were compared. Overall, respondents were more positive towards text nine in comparison to the other text messages.

A study by Smith (1989) examined the emotional expressions decoded by a smile and a frown. Their results indicated that facial muscle activity displaying a smile or a positive emotional response could be related to pleasantness. According to the pre-test results, respondents were more familiar with *Reach for a Dream* than with *Cheetah Outreach.* As previously discussed in the literature chapter, an internalisation process occurs when an individual has accepted a message from a source based on previous experiences of trust (Giffin, 1967). According to Domino (2003), information that individuals gain from a source can influence certain opinions, behaviour and beliefs. Considering that the respondents were more familiar with *Reach for a Dream*, their level of recognition contributed to the positive responses towards text nine with reference to a message source.

7.4.10 Text ten: Narrative statement – results interpretation

Text ten, namely '*Your support has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Shepherd Dog Programme in support of protecting the wild Cheetah/ Your support has contributed towards helping Reach for a Dream continue giving hope to children fighting life-threatening illnesses',* is a narrative statement informing donors about how their contribution has helped the respective non-profit organisation and its beneficiaries. The text messages differ in terms of their factual information.

7.4.10.1 GSR results interpretation: Narrative statement - Cheetah Outreach

The GSR results for text ten for *Cheetah Outreach* (NPO one) were analysed. Significant deviations from the baseline indicated short-term activation or arousal amongst respondents. Exposure to text ten produced a GSR response amongst respondents, particularly amongst males and rational decision-makers. Male respondents (GSR = 3.70) showed the highest level of arousal. Text ten is classified as a narrative that is informative pertaining to the detailed information relating to *Cheetah Outreach*. The *post-hoc* focus group results referred to the length of the message upon which part of the interpretation of the results was based.

7.4.10.2 GSR results interpretation: Narrative statement - Reach for a Dream

The GSR results for text ten for *Reach for a Dream* (NPO two) were interpreted. Significant deviations from the baseline indicated short-term activation or arousal amongst respondents. Exposure to text ten produced a GSR response amongst respondents, specifically among males and rational decision-makers on the one hand, and emotional decision-makers on the other hand. Emotional decision-makers (GSR = 2.77) and male respondents (GSR = 2.75) showed the highest

levels of arousal. However, female respondents did not experience arousal. Text ten is classified as a narrative that is informative. As a result of the length of text ten in comparison to the other text messages, respondents spent more time reading the information, thus influencing their levels of arousal.

7.4.10.3 EMG results interpretation: Narrative statement - Cheetah Outreach

The EMG results for text ten for *Cheetah Outreach* (NPO One) were reviewed. Significant deviations from the baseline indicated positive or negative emotional responses. There was a significant deviation from the baseline when the EMG scores for male and female respondents were further analysed. There was a difference between EMG scores of male and female respondents towards text ten. Male respondents experienced a significantly higher negative emotional response towards text ten than females did. Assumptions include the fact that the message is a narrative, and adopts a detailed approach to inform individuals on how their donation has made a difference.

The focus group results confirmed that female respondents took preference to the level of information and knowledge acquired from reading the text message. According to the *Selectivity Model* referred to by Darley and Smith (1995) and Meyers-Levy and Maheswaran (1991), males are selective processors whereby lengthy, detailed messages require a higher level of concentration thus causing male respondents to frown. According to Genco *et al.* 2013, liking or positive emotional valence is enhanced by processing fluency. It has been postulated earlier in the study from the focus group results that male respondents prefer to read less, and that their lower level of emotional thinking may affect their involvement with a message and information. Females, alternatively, are referred to as comprehensive processors who respond to subtle cues. According to the current study's focus group results, females reacted with positive emotions towards text ten as the message required a higher level of involvement, thus appealing to comprehensive processors.

According to the eye-tracking results, respondents focused their attention on the word 'Anatolian', the name given to a specific type of guarding dog. Male respondents expressed negative emotions suggesting unfamiliarity or confusion, whereas female respondents were positive. Petty and Cacioppo's (1986) *Elaboration Likelihood Model (ELM)* states that message topics reflect personal relevance and meaning to the reader, and a greater amount of time and effort is spent during the information processing stage when making a decision. Considering that females read messages more comprehensively, the meaning of the word 'Anatolian' became clear once the remainder of the message was processed.

The EMG responses of male respondents and rational decision-makers differed when text ten and text four were compared. In both these cases, male respondents and rational decision-makers

were more favourable to text four. This result concurred with the explanation of the *Selectivity Model* tested by Darley and Smith (1995). Both the respondent groups possessed rational thinking qualities, therefore they would respond more favourably to shorter, simpler and factual messages.

7.4.10.4 EMG results interpretation: Narrative statement - Reach for a Dream

The EMG results for text ten for *Reach for a Dream* (NPO two) were reviewed. Significant deviations from the baseline indicate positive or negative emotional responses. There were no significant deviations from the baseline when assessing the EMG results for text ten. Additionally, there were no significant differences between the responses to text messages of both *Cheetah Outreach* and *Reach for a Dream*. Respondents did not experience significant emotions towards text ten.

Against this background of the research process, findings and interpretation of the results, the limitations of the study will be discussed next, along with suggestions for future research. The chapter concludes with the managerial implications for the non-profit sector, and recommendations are offered.

7.5 LIMITATIONS OF THE RESEARCH

There were several limitations of the study. The characteristics of the text messages, the choice of non-profit organisations and the neurophysiological techniques used can be singled out as areas for improvement. However, the limitations also present opportunities for further research. The limitations will be dealt with first, along with the accompanying suggestions for future research.

7.5.1 The non-profit organisations selected for the study

A limitation to the study suggests that the level of familiarity with the two non-profit organisations was not equal. It can be assumed that as a result of the respondents' familiarity with *Reach for a Dream,* neurophysiological responses were influenced. Additionally, as a result of a difference in the topic represented by each non-profit organisation, respondents experienced different associations and levels of personal involvement.

7.5.2 The use of online text messages as a communication medium

The medium used in which to portray the messages to respondents posed another limitation. The messages were portrayed online in the form of slides. According to the *post-hoc* focus group discussion, depicting the messages by using various media such as SMS's, emails or print advertisements may have influenced the perceptions of individuals by adding context to the messages. However, for the purpose of the study it was imperative that no other elements such as graphics or images were included in order to prevent distractions and to gain an accurate perception towards the wording only.

7.5.3 Limitations of neuroscientific equipment

Considering that neuromarketing is an emerging research field and a developing scientific discipline, research involving advances in neuroscientific techniques may lead to more sophisticated analyses and improved interpretation techniques. The limitations pertaining to the specific neurophysiological methods used in the study will be outlined next.

7.5.3.1 Limitations of galvanic skin response

The GSR measure is the most sensitive neurophysiological measure that was used in the study. The GSR results also confirmed the research findings by Hensel (1970) that it is the foremost sensitive physiological indicator or psychological measure. An assumption can be made with regard to the nature of the presentation of the text messages or stimuli. The text messages were presented on a computer screen on a plain white slide type format. The page was blank except for the insertion of the text message. The text messages were positioned in the middle of the screen and were grey in colour. Respondents were not distracted by any other elements on the screen, and they could thus focus more as a result of the simplistic nature of the stimuli. Additional research regarding the reasoning behind the sensitivity amongst the GSR measure can be explored in future studies.

Another limitation of the GSR measure is its inability to detect direction of affect. For example, measures do not indicate whether the individual experiences positive or negative processes (Tull & Hawkins, 1990). It is suggested that further GSR research make use of respondent screening processes as respondents with medical conditions or who are physiologically indifferent may interfere with the accuracy of the results. GSR research methodology has not been aggressively marketed therefore marketing researchers are unaware of the technique along with the benefits and the validity of the research data available (Hopkins, 1987). Based on previous research, Caffyn (1964) recommends that GSR measures be used in future to measure emotional responses towards advertising.

7.5.3.2 Limitations of electromyography

EMG measures detect emotional responses. The reactions are classified as either positive or negative, however, a limitation of EMG techniques remains that it cannot yet detect the exact emotions that respondents experience. Expressions specifically are part of multiple emotion categories (Russell & Bullock, 1986). Genco *et al. (*2013) postulate that individuals are able to express internal emotional states without projecting accompanying facial expressions. According to Hager and Ekman (1983), few studies have attempted to pinpoint the exact cues for each emotion. EMG technology has yet to determine the exact meanings and feelings expressed by positive (dominant smile) or negative (dominate frown) EMG scores. As a result, the current study's results were based on pre-test results and *post-hoc* focus group discussions.

7.5.3.3 Limitations of eye-tracking

A limitation of the eye-tracking methodology is that the measures are biometric-only. Brain activity measures are able to identify the different feelings and associations based on the areas in the brain that indicate electrical and magnetic activity. However, the shortfall of the biometric-only approach can be overcome by post-experiment interviews and logical inferences (Zurawicki, 2010).

7.6 IMPLICATIONS AND RECOMMENDATIONS FOR NON-PROFIT ORGANISATIONS

The results of the current study have a number of practical implications for non-profit marketing communication managers. These implications are based on several marketing communication-related concepts, which include the characteristics of target audiences and their responses, the nature of different non-profit organisations and neuromarketing as an insightful and appropriate research methodology.

7.6.1 The role of the non-profit organisation

Petty and Cacioppo's (1986) *Elaboration Likelihood Model (ELM)* states that message topics reflecting personal relevance and meaning to the reader, promote a greater amount of time and effort spent during the information processing stage when making a decision. This theory supports the inference that, based on the results, respondents had different associations with the selected non-profit organisations of the study.

In many cases, it was assumed that respondents expressed emotions of sadness and despair when reminded of the beneficiaries that are supported by *Reach for a Dream*. Respondents who were exposed to *Cheetah Outreach*, experienced different emotions. Non-profit managers need to know their organisation's industry position to preserve who or what they are representing and acknowledging the possible associations that respondents may experience with the organisation. The results of the current research indicate the importance of these associations in influencing individual neurophysiological responses and ultimately their behaviour.

7.6.2 Recommended feedback message design elements for non-profit communication managers

Text one (simplified statement) and text two (simplified statement; non-profit specific) demonstrated mixed results amongst respondents. Arousal was detected amongst all respondents. Respondents expressed negative emotional responses towards text one, however, respondents expressed positive emotional responses towards text two. The eye-tracking data confirmed the attention of the respondents towards the inclusion of the name of the non-profit organisation, *Reach for a Dream*. It is recommended that non-profit managers refer to the name of their non-profit organisation in their communication messages, which will encourage arousal and emotional response, allowing individuals to develop familiarity towards the organisation.

Responses to text three (elaborate wording) indicated significant levels of arousal and emotion. However, mixed emotional responses towards text three (elaborate wording) were detected. Respondents expressed positive emotional responses towards text three relating to *Reach for a Dream.* Respondents expressed negative emotional responses towards text three relating to Cheetah Outreach. Pre-test data results suggest that familiarity towards *Reach for a Dream* may have influenced the results.

It is evident from the conclusions that non-profit communication managers may consider the use of numeric values as well as factual information as effective message content elements. Text four (monetary numeric value), text five (collective monetary value) and text six (factual quantitative information) make use of information expressed numerically. The responses of text four indicated mixed results with respondents expressing positive and negative emotional responses.

Text five (collective monetary value) follows a combined approach by using the collective numeric value as well as elaborate wording. Factual information reassures donors that their donations were received, acknowledged and utilised as they were intended. The literature review confirms the effectiveness of numbers over wording and may be considered as an effective element for communication message design. Therefore, non-profit organisations should consider focussing on the magnitude of the donation value in their feedback communication messages.

Text six makes use of factual, numeric values. Respondents were favourable towards text six with reference to both non-profit organisations. Non-profit managers may consider making use of factual, numeric elements in the design of their communication messages. Individuals' respond to evidence that is easy to process, simple and requires little concentration. The use of numeric values enhances tangibility thus adding a realistic element to the process of donating. Individuals may then become more convinced that their donation have made a difference and thus be encouraged to donate again in future.

Text seven makes use of a generalised, generic message expressing a standard message of thank you's. Overall, respondents showed arousal and negative emotions. Text eight is similar to text seven, however, the use of the elaborate adjective 'kind' is used in the address. A significant difference in results was detected between text seven and text eight. The eye-tracking data confirmed that the respondents' attention was on the word 'kind', thus justifying the effect of the adjective included in the message. However, non-profit managers need to exercise caution when considering text seven and text eight. The results indicated the least favourable neurophysiological responses towards a generalised address, as it was suggested from the members of the post-hoc focus group to be generic and impersonal.

Text nine makes use of a message source. The message source is an unfamiliar name in both cases. Respondents reacted differently as a result of the varying levels of familiarity with the non-profit organisations. Respondents were more accepting of an unknown source when their

familiarity levels towards the non-profit organisation were high. Consequently, respondents expressed positive emotional responses towards text nine relating to *Reach for a Dream*. Non-profit managers may consider making use of a message source, provided that the organisation is relatively well established. Furthermore it is recommended that non-profit managers use a familiar spokesperson on behalf of the non-profit organisation, to influence the respondents' neurophysiological responses towards the message.

Non-profit managers should deem the results of text ten as valuable as it is possible that a narrative message is more effective in representing a smaller or newer non-profit organisation that individuals are less familiar with. Detailed and informative message contents are more appealing to individuals who require more knowledge about the non-profit organisation in order for decision-making and donations to take place.

An extensive literature review and research evidence support the final interpretation of the results. A summary of the text message elements used in the study provide non-profit managers with brief yet insightful recommendations for the design of their marketing communication campaigns.

A further analysis considers the classification of the responses based on respondent gender and respondent decision-making styles, and will be discussed next.

7.6.3 Gender roles and decision-making styles in the design of feedback message design

The purpose of a communication message is to take into account whether the message affects an individual enough to reach his or her subconscious in order to motivate decision-making. Additionally, it is less important whether the message causes positive or negative responses. Results from the current study revealed differences in the respondents' neurophysiological responses depending on their gender and decision-making styles.

A review of important characteristics related to gender (male and female) and decision-making styles (emotional and rational decision-making) were discussed in the literature section earlier in the study. The findings provide insight for non-profit communication managers by emphasising the importance of understanding the classification of their target audience in terms of gender and decision-making styles. In most of the cases in the current study, male and female respondents differed in their responses towards the text messages. In the current study, female respondents experienced higher levels of emotions towards the text messages in comparison to their male counterparts.

Gender differences in terms of attention to text as opposed to graphic information have been identified (Goodrich, 2014). Females tend to focus more on text, whereas males tend to focus more on graphics and images (Pan, Hembrooke, Gay, Granka, Feusner & Newman, 2004). Hemispheric processing identifies distinct differences in gender information processing. The right hemisphere in the brain is better suited to comprehend pictorial stimuli (Hansen, 1981). The left

hemisphere is suited to verbal material. Considering that males are selective processors and have preference towards pictorial material, it can be concluded that males are more suited to the right hemisphere.

Results of the current study indicated significant responses from males relating to shorter text messages such as text one (simplified statement) and text two (simplified statement; non-profit specific). However, male respondents expressed negative emotional responses towards the longer and detailed message of text ten (narrative statement).

The results also suggested that females experienced different neurophysiological responses towards the text messages associated with *Cheetah Outreach* (NPO one) than *Reach for a Dream* (NPO two). Taking into account the association with children in NPO two, the messages appealed to the maternal instinct, thus affecting females more than males. Similarly, non-profit organisations need to consider the type of industry that they represent and design their communication messages accordingly. For instance, the study identified that females responded more favourably to *Reach for a Dream* because of the association with sick children, therefore an emotional appeal was used.

There were a number of significant differences between rational decision-makers and emotional decision-makers. Findings suggested that more females believed that they made decisions based on emotional decision-making styles, while males believed that they made their decisions based on rational thinking. Males or rational thinking respondents in the current study reacted more favourably to messages with factual and functional information (text four, text five and text six) which required low levels of information processing. On the other hand, females are believed to be more nurturing and emotional, therefore they responded more favourably to the elaborate, lengthier messages (text three – elaborate wording). Female respondents are classified as comprehensive processors and therefore they are able to process more detailed and informative messages (Meyers-Levy & Maheswaran, 1991).

It is clear from the results from the current study and the supporting theories relating to gender information processing, that male and female individuals experience different neurophysiological responses towards text messages. Non-profit managers need to consider these differences in the development and design of their marketing communication campaigns.

7.6.4 Neuromarketing research versus traditional marketing research methodologies

According to Zaltman (2003), traditional research methods are surface-orientated whereby individuals are empowered with freedom of expression and thought. The subconscious mind refers to the mental processes that occur beneath the individual's awareness. Together with conscious processes, experiences are created. The use of neuromarketing methodological research moves away from and beyond traditional research methods.

Affective processes are most frequently tested using self-reports, however, these methods have been recognised as biased due to social desirability concerns (Vanman, Paul, Ito & Miller, 1997). LaBarbera and Tucciarone (1995) also reviewed the limitations of traditional self-report research methodology. According to these authors, statements based on attitudes are poor predictors of behaviour. Rationally worded questions generally elicit rational responses, but in the marketplace people make buying decisions irrationally or based on emotions. Consequently, marketers are concerned with the accuracy of traditional forms of advertising. Physiological testing offers a direct measure of motivational behaviour, but due to the costs and time constraints, the relevant methodologies have been underutilised (LaBarbera & Tucciarone, 1995). However, considering that neuroscientific technology and methodologies have become more accessible, researchers have shifted their attention towards physiological measures that are able to reach the subconscious minds of individuals.

Neurophysiological methods are more accurate in the measurement of neurophysiological changes as the results overcome the influence of socially accepted responses from individuals (Kroeber – Riel, 1979). Respondents are often not willing to reveal their true feelings, in fear of harming their self-esteem. Based on the depth and value associated with investigating the subconscious findings produced by neuromarketing techniques, it can be recommended that non-profit managers make use of these marketing methods to assess their current marketing communication designs and campaigns.

7.7 IMPLICATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

The study provides direction for further research into the neurophysiological responses of individuals towards pre-designed marketing communication stimuli in a non-profit context.

7.7.1 The role of the non-profit organisations used in the study

Future research can be extended to the choice of the non-profit organisation. The current research used real-life non-profit organisations. However, future studies could make use of fictional non-profit organisations thus eliminating the imbalance of familiarity with the non-profit organisations.

Additionally, the study made use of a convenience sample whereby any individuals were able to participate. The two non-profit organisations chosen were from different non-profit sectors with the intention of broadening the focus and using contributing research results to add value in more than one industry, both wildlife and the humanitarian sectors. Cheetah Outreach was selected as a non-profit organisation of interest representing the wildlife sector based on the researcher's previous voluntary work experience at the organisation. Consequently, Reach for a Dream represents a non-profit organisation in the humanitarian or social services sector thereby allowing for a direct comparison between results. Additionally, Reach for a Dream was selected based on the success of the organisation in South Africa in actively helping sick children for more than twenty-five years.

The total sample of respondents was divided amongst the non-profit group where each respondent was exposed to one non-profit organisation only. It is possible that the associations with wildlife conservation (*Cheetah Outreach*) and human social issues (*Reach for a Dream*) were not of great concern to the respondents. Future studies may thus consider alternative non-profit sectors.

A pre-test questionnaire was required for completion by respondents before participating in the research. Respondents were required to indicate their gender and their attitudes towards non-profit organisations and helping others. Future research studies may consider identifying an income bracket in order to understand an approximate financial background of the respondents. Considering the nature of the research in a non-profit context, further knowledge regarding the financial background of respondents may have influenced their willingness to donate initially, thus affecting their responses.

7.7.2 The use of feedback text messages as a communication medium

Future research may consider measuring the responses to visual and graphic material by employing neurophysiological measures as used in the current research. Results from the messages in the current research may be used in combination with images, testing the effect of words versus graphic material from a neurophysiological perspective, thus providing effective marketing communication for non-profit managers.

In the current study, certain message content elements were chosen and included in the pre-design of the text messages. These elements were used to test the neurophysiological responses towards feedback messages and ultimately future donation intentions. According to Hardy (2011), understanding how and why certain types of messages are more persuasive than others can be considered as another important topic for future research. Research on how individual attitudes and behaviour are affected by message framing has not received a significant amount of attention (Maheswaran & Meyers-Levy, 1990). Therefore, future research can improve on the current elements chosen in text messages, or otherwise, re-design feedback messages.

The current research tested the neurophysiological responses of individuals towards text messages. Little research has been explored that tests the responses to wording and language from a neurophysiological perspective. There is thus a gap with regard to further exploring communication effectiveness by means of neurophysiological assessments. Also, the current research focused on communication methods in the non-profit sector, thus contributing to existing non-profit marketing communication literature. Although there has been extensive non-profit and marketing communication based research, neuromarketing has not yet explored the influence of feedback messages in a non-profit context (Goodrich, 2014).

7.7.3 Psychological response dimensions

The relationship between the psychological antecedents and the physiological consequences is an important area that researchers can investigate in future studies. Alternatively, a number of different physiological measures can be used to measure different dimensions of psychological processes. Stewart and Furse (1982) suggest that arousal is a multidimensional affective process. Thayer (1978) believes that other physiological measures such as heart rate, pupil dilation and brain activity also measure arousal. Therefore, it may not be valid to measure arousal by using only one physiological technique. A framework with regard to the multiple dimensions of corresponding psychological and physiological measures should be taken into account in future research.

Fugate (2007) asserts that, in order to achieve academic relevance, further research is needed in the neuromarketing field. More specifically, Fugate (2007) suggests the construction of a behavioural model that can predict appropriate marketing material using different stimuli, in order to prompt the generation of certain responses from the brain. Fugate (2007) acknowledges that, in order to develop behavioural models in the neuromarketing field, a shift from basic to applied neuromarketing research is needed.

7.7.4 Sequence of cognitive and affective processes

According to Wang and Minor (2008), an individual's cognitive and affective processes occur in sequence. Considering the hierarchy of effects model for advertising effectiveness by Lavidge and Steiner (1961), Bagozzi (1991) suggests that a similar sequential process takes place during psychophysiological processes. The response process begins with cognition followed by arousal, attitude change and lastly behaviour. Future studies into the sequential variations of the psychophysiological processes in response to stimuli can be explored.

7.7.5 Combinations of verbal and psychophysiological measures

As previously discussed, neuromarketing techniques have a number of advantages in comparison to traditional marketing. However, it should be noted that neuromarketing experimental studies involve various reliability, validity and applicability concerns. Although not on purpose, experimental environmental settings and conditions increase the possibility of external disturbances, thus creating bias of the results. In order to validate the results, researchers can make use of verbal and psychophysiological measures together. In addition, a comparative study regarding the differences between the data obtained from verbal measures and neurophysiological measures can be assessed (Wang & Minor, 2008).

Based on the adoption of neurophysiological methods, the possibility regarding the reality of the situation to respondents may have influenced the results. As a result and according to the *post-hoc* focus group discussions, respondents may not have fully grasped the act of donating as a realistic

personal experience. Considering that the responses were based on a hypothetical act of giving, subconscious results may not have processed the activity, thus affecting the accuracy of the results in real-life.

7.7.6 Advances in neuroscientific equipment and additional techniques

Given the fact that neuromarketing is a developing school of thought, insights into the application of neuromarketing techniques are required in future marketing research studies. According to Wang and Minor (2008), future research in the following specific areas are recommended:

The evolution of the technologies involved in neuroscientific research occurs rapidly. Market researchers are able to make use of advanced computer software programmes involved in measuring physiological responses as well as assisting in the statistical analysis of the data. Further advances in technologies can provide researchers with additional tools to explore the endless number of deeply rooted processes in the human brain. An extensive understanding of an individual's physiological reaction can justify and explain the cognitive and affective processes that ultimately cause certain behaviour in humans.

As a result of the advances in neuroscientific technologies the latest techniques and advances in neuroscientific equipment can be further explored which will enable researchers to overcome validity and reliability concerns (Wang & Minor, 2008). As an alternative to traditional research measures, neuromarketing methodologies may be used as tools that could assist non-profit managers to design effective marketing communication messages to potential donors.

7.7.6.1 Guidelines for future research of galvanic skin response

Based on previous learnings from marketplace applications, LaBarbera and Tucciarone (1995) suggest guidelines for future GSR use by marketing practitioners and academics. Caffyn (1964) adds that even though the GSR measure has been classified as valid, the laboratory equipment has since been underutilised. Adequate equipment along with the appropriate testing formulas is required for the proper implementation and application of the methodology. In order to isolate the motivational components of a stimulus, additional measures such as voiceovers may be considered. The current research used of eye-tracking methodologies to pinpoint the key areas of interest with regard to exposure to a text message.

The most suitable sample size required for GSR methods needs to be deliberated. A typical sample size of less than 50 respondents is deemed as adequate for GSR measures, however, it is important that the target audience is defined. Lastly, market practitioners and academics making use of GSR as a research methodology must be prepared for a contradiction between self-reporting and physiological results. However, LaBarebera and Tucciarone (1995) recommend the use of GSR methodologies for more accurate and unbiased data. Ideally, the research suggests a

combination of GSR methodologies and other means of traditional qualitative or quantitative research practices.

In a marketing environment where an immediate behavioural response is an objective, the use of GSR is able to provide a higher level of predictive validity in comparison to self-reporting data. Also, a combination of GSR techniques and traditional methodologies can pinpoint the motivational and non-motivational components that feature in a text message. Overall, it is worthwhile for marketing practitioners and academics to further explore GSR measures (LaBarbera & Tucciarone, 1995).

In most cases of the current study, the GSR measures detected significant differences between responses towards the text messages. Hensel (1970) considers GSR as the most sensitive physiological indicator or psychological measure. Individuals have low voluntary control over the autonomic nervous systems thus exhibiting unbiased activation or arousal as a result of exposure to marketing stimuli (LaBarbera & Tucciarone, 1995). As a result, a number of researchers specialising in consumer behaviour have started to use GSR as a methodology to measure consumer arousal (Bagozzi, 1991).

Kohan (1968) conducted research that compared verbal responses to GSR measures. The results pointed to significant differences between the comparisons. According to Kohan (1968), individuals offer information to the benefit of the interviewer rather than their own true feelings. GSR research has identified that advertising messages should evoke emotional response to be effective. The emotions are required to be strong enough to provoke behaviour on a subconscious level regardless of the cognitive thought.

7.7.6.2 Guidelines for future research of electromyography

According to Hager and Ekman (1983), a limited number of studies have attempted to pinpoint the exact cues for each emotion. Although negative EMG scores in the current study indicated frowning, it cannot be assumed that a feeling of sadness or dislike was being expressed. However, other emotions associated with frowning such as concentration or confusion could be the reason behind the dominance of a frown in comparison to a smile. Alternatively, respondents were not necessarily expressing negative emotions towards the stimuli.

Further research can be considered regarding the *orbicularis muscle* that is situated below the eye, detecting the honesty of a smile. The current research focused on the dominance of the *zygomaticus major muscle* or the *corrugator supercilli*, however, more advanced research can detect the depth of a smile in addition to how realistic and truthful the smile appears to be. A limitation of EMG is that respondents are alerted by the electrode placement. As a result, normal behaviour may be influenced (Hager & Ekman, 1983). Respondents may become self-conscious that they are being monitored, thus altering their natural expression. Although the

psychophysiological assessment is non-invasive, a key limitation concerning EMG indicates that some respondents may find the measure psychologically intrusive (Fridlund & Cacioppo, 1986). Additionally, the interaction between the respondents and the researcher is intimate thus researcher bias may develop during the study (Fridlund & Cacioppo, 1986).

7.7.6.3 Guidelines for future research of eye-tracking

It is suggested that potential research participants undergo a screening process in order to detect medical conditions relating to eyesight. Additionally, the eye-tracking measurements require reasoning behind the results. It was clear as to where respondents focused their attention, however, a combination of traditional research methods or neurophysiological methods are required to pinpoint the underlying reason why respondents focussed their attention on specific cues (Pan *et al.*, 2004). Additionally, the current research did not identify whether the focal points indicated positive or negative emotions.

Eye-tracking results measured the focused attention of the most respondents towards the text messages. Heat maps were generated that illustrated the areas of focus in shades of yellow, orange and red respectively. Numeric elements and monetary elements in text four, text five and text six illustrated that the majority of respondents showed focused attention. Other elements such as the name of the non-profit organisation and elaborate wording in text three and text eight also elicited attention. Unfamiliar wording in text ten also attracted attention. Heat maps were generated for each text message and the results were discussed using descriptive analysis for each message.

7.8 FINAL SUMMARY AND CONCLUSION

The overall purpose of the study was to determine the influence of feedback text messages on individuals' neurophysiological responses in a non-profit context. Previous literature was reviewed to gain a comprehensive understanding of the non-profit industry, the relevance of marketing and marketing communication for the industry, communication message design, the influence of feedback messages on consumer responses and neuromarketing research techniques.

An electronic observation approach was adopted by the use of three neuromarketing techniques, namely electromyography (EMG), galvanic skin response (GSR) and eye-tracking (ET). The research took place over nine weeks in a laboratory environment. Ten text messages were designed as the active stimuli. The total sample consisted of ninety male and female respondents. The total sample was split into two groups. Each group was exposed to ten text-based feedback messages. The first group of respondents were exposed to post-donation feedback messages on behalf of *Cheetah Outreach*. The second group of respondents were exposed to feedback messages on behalf of *Reach for a Dream*.

Each message made use of pre-designed communication elements including a simplified statement (text one), a simplified statement specific to a non-profit organisation (text two), elaborate wording (text three), monetary numeric values (text four), collective monetary numeric values (text five), factual quantitative information (text six), generalised address (text seven), elaborate generalised address (text eight), message source (text nine) and a narrative statement (text ten). The neurophysiological responses relating to GSR and EMG measures towards the messages were detected and the results were compared to ascertain differences between measures and the baseline, between the respondent groups who were exposed to messages from both non-profit organisations, as well as between the ten text messages. Further analyses by respondent gender and decision-making styles were completed.

An extensive review of each text message based on GSR and EMG results was discussed. Further analysis considered the results based on the self-classification of the respondents relating to gender (male or female) and decision-making styles (rational or emotional decision-makers). Neurophysiological responses towards each text message were detected in addition to a number of comparisons of the responses towards the text messages. Final results indicated that the use of different message elements in communication design did affect the levels of arousal and emotional responses amongst respondents.

More specifically, it is clear from the results of the study and supporting theories relating to gender information processing, that male and female individuals experience different neurophysiological responses towards text messages. Non-profit managers should consider these differences in the development and design of their marketing communication campaigns. Responses based on rational and emotional decision-making styles also reveal significant differences. Key findings that are considered insightful and noteworthy for non-profit communication managers were acknowledged.

Arousal was detected by means of a number of GSR responses towards all text messages. More specifically, there were a higher number of significant GSR responses amongst males than females. Furthermore, there was a higher number of significant GSR responses expressed by rational decision-makers than emotional decision-makers. Pre-test data results justified the findings indicating that more male respondents were self-classified as rational decision-makers. Text one (simplified statement), text two (simplified statement; non-profit specific), text six (factual quantitative statement) and text nine (message source) indicated significant levels of arousal amongst all respondents relating to *Cheetah Outreach* irrespective of their gender or decision-making styles.

The EMG results contribute to the literature relating to the encoding of the affective emotional states represented by the components of specific facial expressions. Emotional responses were experienced by respondents irrespective of their gender or decision-making styles. Results

between *Cheetah Outreach* and *Reach for a Dream* differed because of the levels of familiarity with the non-profit organisation, thus influencing the direction of the emotional response. According to Genco *et al.* (2013), liking or positive emotional valence is influenced and enhanced by familiarity and processing fluency. Pre-test data revealed that respondents were more familiar with *Reach for a dream* than with *Cheetah Outreach*.

Key findings further suggest that exposure to text six (factual quantitative statement) indicated positive emotional responses relating to both *Reach for a Dream* and *Cheetah Outreach*. Significant positive emotional responses experienced by respondents occurred the most frequently towards text four (monetary numeric value) in comparison to text one (simplified statement), text three (elaborate wording), text seven (generalised address), text nine (message source) and text ten (narrative statement). Eye-tracking results confirmed the attention towards the numeric message element in text four. Text seven (generalised address) revealed negative emotional responses relating to both *Reach for a Dream* and *Cheetah Outreach*. Additionally, negative emotional responses were detected towards text ten relating to *Cheetah Outreach*, however, no emotional responses were warranted by respondents towards text ten relating to *Cheetah Outreach*.

The limitations to the study and the implications for the non-profit sector were discussed and can be seen as scope for future research. Advances in technology can be considered in order to improve research methods and accuracy of the results in future. Although neurophysiological behaviour can be detected, the neuromarketing techniques used in the current research, namely GSR, EMG and ET were measured at surface level. The neuroscientific techniques adopted prohibited the researcher from identifying the exact emotions experienced by the respondents. This was also the primary limitation of the current study. Since the development and adoption of neuroscientific techniques, reference to research pertaining to affective emotional states detected by means of facial muscle activity assisted the final results and conclusions of the study.

The results of the study provide useful insights for both researchers and non-profit marketing practitioners. The research addressed the neuroscientific field and the non-profit sector by contributing to non-profit marketing communication research with neurophysiological evidence. Considering that neuroscience is a developing school of thought, there are a number of untapped areas whereby advances in technology provide extensive scope for future research studies. Further research concerning communication design through the recognition of physiological responses can contribute to the wealth of recent neuroscientific findings and to complement current marketing practices in the non-profit sector. In a society with fierce competition and a struggle for funding, the emerging needs of the non-profit sector should be addressed. Non-profit managers can consult neuromarketing literature to articulate an informative, vibrant and innovative communication channel that can provide the non-profit sector with further insight for the development and implementation of successful marketing communication campaigns.

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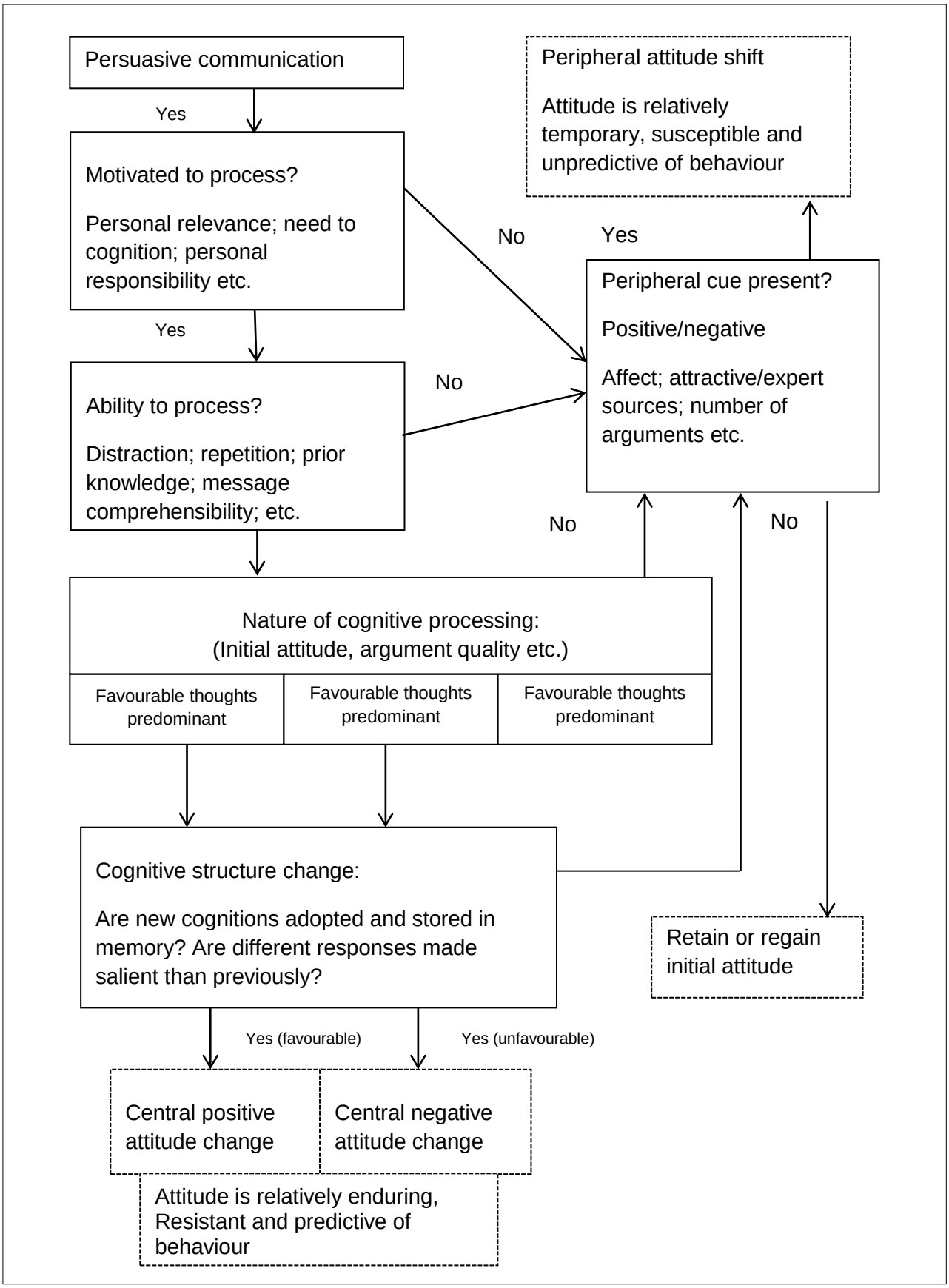
ADDENDUM A:

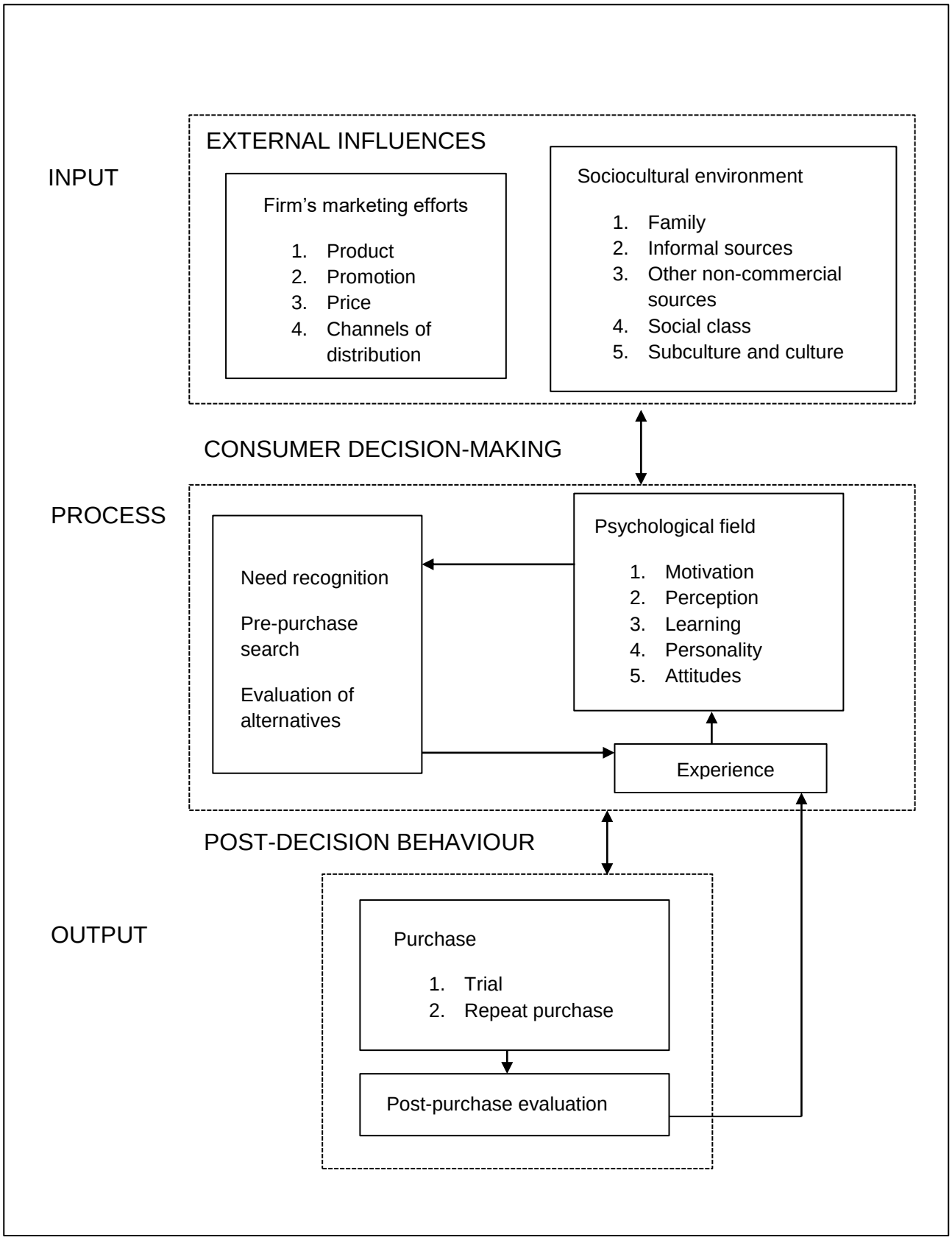
CENTRAL AND PERIPHERAL ROUTES TO PERSUASION



Source: Petty and Cacioppo (1986)

ADDENDUM B:

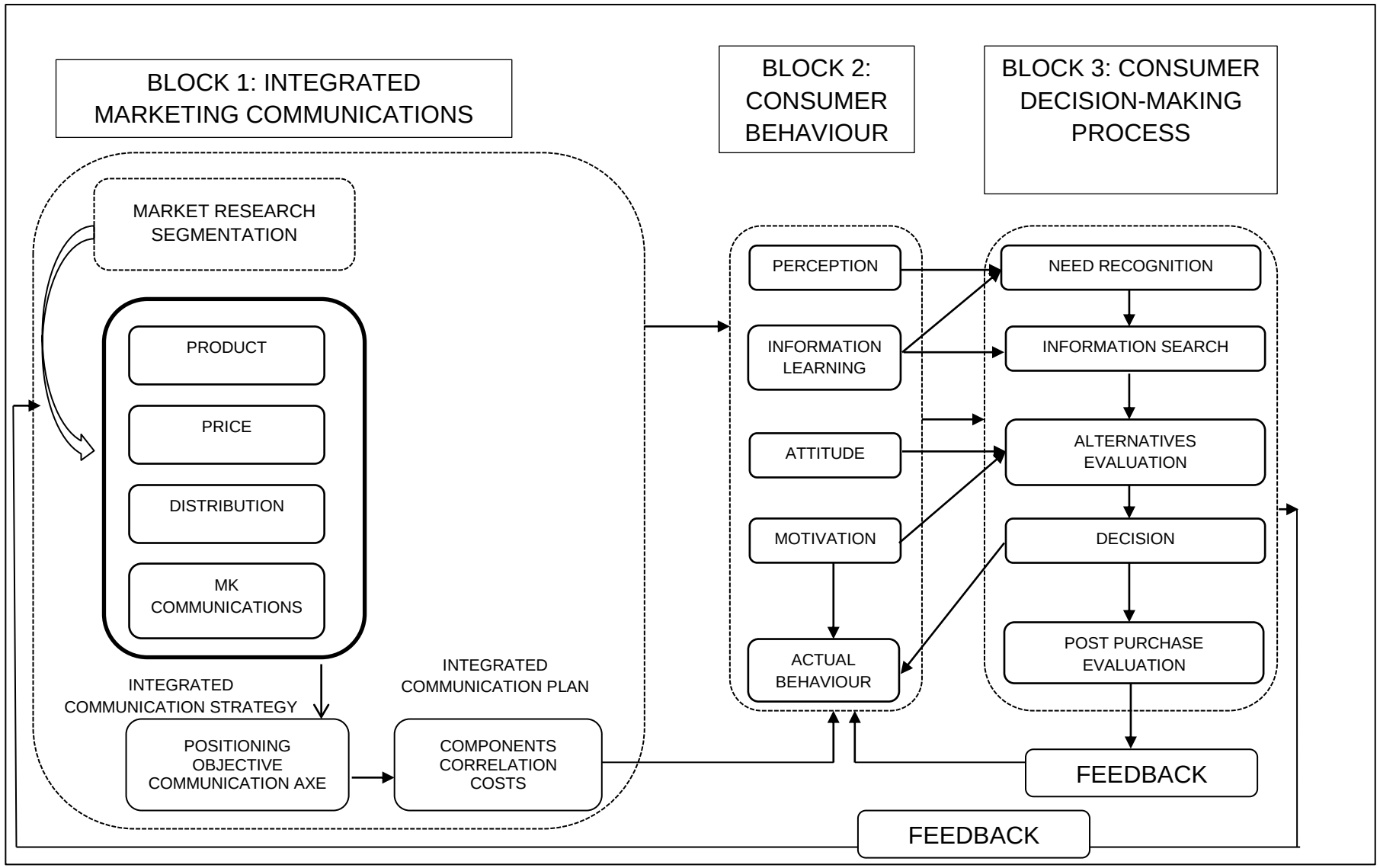
CONSUMER DECISION-MAKING MODEL



Source: Schiffman and Kanuk (2009)

ADDENDUM C:

THE INTEGRATED MARKETING COMMUNICATION (IMC) INFLUENCE ON THE CONSUMER DECISION-MAKING PROCESS



Source: Mihart (2012)

ADDENDUM D:

RAW RESPONSES FOR STIMULI DESIGN FROM SOCIAL MEDIA CHANNEL

'Masses of non-profit organisations in South Africa struggle due to a lack of funding. I am part of a big research project to try and make a difference'. Please do me a favour and answer the following question:	
Suppose you made a donation to a non-profit organisation (of your choice). Afterwards, what message should the non-profit send to you in response to your donation?	
1	"I would want a response on which they committed to updating me as to what exactly my donation has done. I know that people worry about whether NPO's are properly managing their donations".
2	1. "Your donation helped contribute towards the construction of new facilities that will enable us to house X number of additional cheetahs". 2. "Your donation helped contribute towards the feeding of X number of cheetahs in period Y". 3. "Your donation helped contribute towards enabling us to rescue X number of cheetahs in period Y".
3	"I think it gives a good impression when the message is addressed to the recipient specifically, as it makes the message feel more if it is an automated message i.e. "Dear Sarah..." I would want to know what the non-profit intends on doing with the money, and visual images always help! Maybe even a short video! I'd also like to be given the option of being kept in the loop about the charity, via email/social media. Finally I'd be super irritated and would probably not donate again, if the charity emailed me again in the future to ask for money. They should leave it up to the donors to decide when to give money".
4	"I would like the response to my donation to say thanks and highlight what the money is going to be used for ie: breeding facility or feeding facility etc. I would also like to then be able through that email to subscribe to a little newsletter that shows the progress of the organization and shows the changes and current events coming up to raise funds (fun runs) and explain how people can get involved".
5	"Thank you for your donation of R...,.. to our cause. Both (Charities name) and (Charities beneficiaries) are extremely grateful for your help, and hope that you have a blessed day".

6	“Thank you for your donation. Please see attached list of top priority expenses (not the right word but best I can come up with) for our organisation. List shows perhaps 10 things the organisation needs help with financially, list including anything from printing costs to vaccination costs (e.g. SPCA). Priorities ranked in order of importance and you are notified where your contribution is going. List should be updated regularly so that people who donate more than once will see that finances are being monitored closely”.
7	"Thank you for your donation towards (non-profit organisation name). The proceeds of your donation will go towards (xxxx). If you would like to find out more about this organisation, please visit (website for organisation)”.
8	“In the response I would obviously want a thank you and in a short concise paragraph explain the future plans for the organization. Would be really nice at the end if the financial year to get a summary of amount of funding spent, and on what areas. Nothing too detailed, short income statement type summary, just to confirm that the money was spent on the general areas that I donated to in the first place. Also much more likely to donate again if I saw it went straight to the cause I gave to”.
9	“The only problem I see with non-profits is that they are not run like a company. So donations are made on emotional guilt but the funds are funnelled through to usually underpaid staff who then do not have an incentive to manage themselves effectively. The main area I am referring to is that of financial management. Unfortunately owing to having manage it a small sum of the proceeds go to benefit the people in need. So I would say I would want to know the actual value I have added to the people in need, to know it is not being siphoned off. And to know that the NGO has good governance and is paying the staff a market related salary which should mean better performance all round which in turn leads to more value being created for those in need”.
10	“I think the non-profit should briefly thank me for my donation and inform me on how I am making a difference with the relative statistics. They should also let me know what they are doing with my donation and how they are using it effectively”.
11	“If I were to donate to a non-profit organisation it would be great to get a response from the organisation obviously thanking for the donation and also telling me what exactly the money is going towards. And maybe if it's going towards a future project, once the project is complete they would send another email/letter showing what my money helped towards. Basically I'd want to know where my money went and how it helped out”.

12	“Thank you for your donation of x-amount. As a result of your assistance, we’ll be able to do the following: (a list showing how my money will be used tangibly). We’d love to continue partnering with you...should you wish to do so, please complete the below form (include banking details)”.
13	“The organisation should either send a written letter or an email affirming receipt of the donation, that it will be used for the purpose that is intended, and a simple thank you, such as: ‘We have received your donation of [R_____]. We confirm and guarantee that your contribution will be put toward our project in [this and this] respect. Thank you for your support’".
14	“I would like the NPO to simply acknowledge my donation. A simple thank you for your support is enough. After all I am donating and not looking for personal gratification as a result”.
15	“I think it would be great if a non-profit could tell you what difference your donation made ...So if you donate R50 and that goes towards half an hour of anti-poaching patrol. Something in stats - real facts. Something that makes you feel like you've made a tangible difference”.
16	“A video or photo showing how they used my money or a possible meet and greet with the person that is benefitting from the funding”.
17	“I personally would prefer a very brief email thanking and acknowledging my donation with some form of undertaking that 99% of my donation would be spent on the cause (and maybe a bit about the cause) and not wasted on excessive admin and salary expenses”.
18	“Dear Mr. Jeftha, we here at Jungle Cat Systems would like to extend our utmost gratitude for the hefty donation you have made. We have procedures in place, which will make sure that your donation is utilised to its fullest in upgrading/updating the research and developmental stages in our newest product. I would really want to know what the donation would be used for instead of it being a generic message of thanks”.
19	“I would like them to acknowledge, e.g. Thank you for your donation... then mention what it is being used for and perhaps a pic/photo e.g. (Animals) Food/cages/blankets etc. Woolworths MySchool is good”.

20	“I would want to know where my money was going, and then a follow up message showing the evidence. So I donate funds towards a new wing at a Children's Hospital, and when the wing has been completed I am sent evidence (photographs/an invitation to the official opening)”.

ADDENDUM E:

STIMULI: INTRODUCTION STATEMENT, TEXT MESSAGES AND WARM-UP STATEMENTS

Codes	NPO One – Messages Cheetah Outreach (CO)	Codes	NPO Two – Messages Reach for a Dream (RFDRM)
Intro 1	Please assume: You have made a donation to the Cheetah Outreach non-profit organisation. Now you receive one of these messages:	Intro 2	Please assume: You have made a donation to the Reach for a Dream non-profit organisation. Now you receive one of these messages:
Warm up 1	We would like to thank you for donating this winter. Your continuous support is much appreciated!	Warm up 1	We would like to thank you for donating this winter. Your continuous support is much appreciated!
Warm up 2	Thank you for donating this winter. We really appreciate your continuous support!	Warm up 2	Thank you for donating this winter. We really appreciate your continuous support!
CO text 1	Thank you for your donation!	RFDRM text 1	Thank you for your donation!
CO text 2	Thank you for donating to Cheetah Outreach!	RFDRM text 2	Thank you for donating to Reach For a Dream!
CO text 3	Thank you for your generous donation to Cheetah Outreach. We value your support – it really makes a difference!	RFDRM text 3	Thank you for your generous donation to Reach for a Dream. We value your support – it really makes a difference!

CO text 4	Thank you for donating R500 to Cheetah Outreach!	RFDRM text 4	Thank you for donating R500 to Reach for a Dream!
CO text 5	Thanks to your donation we have managed to raise R250 000 for Cheetah Outreach. Thank you for making a difference!	FDRM text 5	Thanks to your donation we have managed to raise R250 000 for Reach for a Dream. Thank you for making a difference!
CO text 6	Your donation has helped us to save 150 cheetahs in the past 12 months!	RFDRM text 6	Your donation has helped us to support 16 520 children in the past 12 months!
CO text 7	Dear supporter, thank you for your donation to Cheetah Outreach!	RFDRM text 7	Dear supporter, thank you for your donation to Reach for a Dream!
CO text 8	Dear kind supporter, thank you for your donation to Cheetah Outreach!	RFDRM text 8	Dear kind supporter, thank you for your donation to Reach for a Dream!
CO text 9	Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'	RFDRM text 9	Message from Liesl Smith (Reach for a Dream Manager): 'Thank you for your donation towards Reach for a Dream!'

CO text 10	Your donation has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Shepard Dog Programme in support of protecting the wild Cheetah.	RFDRM text 10	Your donation has contributed towards helping Reach for a Dream continue giving hope to children fighting life-threatening illnesses.

ADDENDUM F:

PRE-TEST QUESTIONNAIRE AND NON-PROFIT ORGANISATION INFORMATION

PRE-TEST QUESTIONNAIRE

Thank you for participating in this study. Please complete the following questionnaire by indicating all answers with an X. Please select only one answer for each question.

(A) What is your gender?

Male	Female

(B) Please indicate your response to the statements below on a scale from 1 to 7.

1 = strongly DISAGREE

7 = strongly AGREE

		Strongly DISAGREE			Neutral			Strongly AGREE
1 ACO1	The money given to charities goes for good causes	1	2	3	4	5	6	7
2 AHO1	People should be willing to help others who are less fortunate	1	2	3	4	5	6	7
3 HH1	I make decisions with my heart more than my head	1	2	3	4	5	6	7
4 ACO2	The money donated to charity is well-spent	1	2	3	4	5	6	7
5 AHO2	Helping troubled people with their problems is very important to me	1	2	3	4	5	6	7
6 ACO3	My image of charitable organisations is favourable	1	2	3	4	5	6	7
7 AHO3	People should be more charitable towards others in society	1	2	3	4	5	6	7
8 ACO4	Charitable organisations have been quite successful in helping the needy	1	2	3	4	5	6	7
9 ACO5	Charity organisations perform a useful function in society	1	2	3	4	5	6	7
10 AHO4	People in need should receive support from others	1	2	3	4	5	6	7

11 HH2	I make decisions with my head more than my heart	1	2	3	4	5	6	7

Help others 0.71 11.46

C) Please read the provided summary (on the next page) about two charitable organisations. Indicate on the scale below how familiar you are with the charitable organisations.

1 = completely Unfamiliar

7 = completely familiar

	Completely unfamiliar			**Neutral**			**Completely familiar**
Cheetah Outreach:	1	2	3	4	5	6	7
Reach for a Dream:	1	2	3	4	5	6	7

Non-profit organisation information

During the study we'll refer to one of either non-profit organisation below. Please read the brief information about each organisation. You do not have to remember any of the information. It is simply provided so that you have a bit more background about the organisation. After reading the information, please answer question C on the pre-test questionnaire.

Cheetah Outreach

Cheetah Outreach is an education and community-based programme created to raise awareness of the plight of the cheetah and to campaign for its survival. Cheetah Outreach is continually evolving and taking on new challenges. In addition to partnering with ambassador cats to inform the public about the problems the cheetah faces, Cheetah Outreach:

- Continues to be involved in environmental education, offering curriculum-linked school presentations and resources as well as workshops and fellowships for teachers.
- Breeds Turkish Anatolian Shepherd dogs and places them on South African farms to guard livestock in an effort to reduce conflict between farmers and predators.
- Hand-rears cubs from the Ann van Dyk Cheetah Centre and raise them to be ambassadors for the species.
- Partners with other cheetah conservation organizations worldwide.

Reach for a Dream

Reach for a Dream is an organisation that believes in the power of dreams. The organisation encourages children to use their dreams to fight life-threatening illnesses. Reach for a Dream's vision is to grow the Foundation, enabling them to continue giving hope to children fighting life-threatening illnesses through the fulfilment of their dreams. They also want to help as many children as possible who are facing these illnesses though their national projects such as Camp Sunshine, Queen for a Day, Captain Courage, Show You Care Send A Bear and their Jabulani Kingdom Hospital entertaining projects that all function on an on-going basis.

ADDENDUM G:

CLASSIFICATION OF NEUROMARKETING TOOLS

Neuromarketing tool	Explanation	Measures	Advantages	Limitations
Record metabolic activity in the brain				
Neurological or neurometric measures				
Functional magnetic resonance imaging (fMRI)	Medical procedure to measure the brain's activity by detecting the level of oxygen in the blood flow. (Orzan, Zara & Purcarea, 2012; Morin, 2011). When neurons are released, energy is required and transported by the blood flow whilst being metabolised. When exposed to a stimulus, parts of the brain receive more oxygenated blood flow than at rest time.	Memory encoding Sensory perception Emotions Craving Trust Brand loyalty Brand preference Brand recall	Spatial resolution of fMRI is more efficient than EEG (Morin, 2011). fMRI is able to provide images of in-depth brain structures specifically when emotional responses are concerned (Morin, 2011). fMRI allows interpretations of psychological processes in the brain (Reimann, Schilke, Weber, Neuhaus and Zaichkowsky, 2011). It is a non-invasive and reliable and valid measure for cognitive responses (Wang et al. 2008).	Temporal resolution of the technology is slow. fMRI is expensive but widely available above MEG (Morin, 2011). Subjects must remain still during the process (Zurawicki, 2010). There is a high complexity in data analysis (Plassmann, Zoega Ramsoy & Milosavljevic, 2011, Kenning, Plassmann & Ahlert, 2007; Savoy, 2005).
Positron emission tomography (PET)	Physiologic images with spatial resolution that records radiation from the emission of positrons. The exact location of the signal is identifiable (Zurawicki, 2010).	Sensory perception emotions	Reliable and valid measure for cognitive responses (Wang & Minor, 2008). High spatial resolution (Zurawicki, 2010; Kenning, Plassmann & Ahlert, 2007).	Expensive Technical issues in obtaining the radioactive material (Zurawicki, 2010) Poor temporal resolution (Kenning, Plassmann & Ahlert, 2007). Ethical barriers (Wang & Minor, 2008).
Recording electric activity in the brain				
Transcranial magnetic stimulation (TMS)	TMS is the use of magnetic induction to identify certain areas of the brain. New technology has allowed for access into the lower parts of the brain. A plastic case with an electric coil is situated near the individual's head. TMS emits a magnetic field that passes through the brain (Berea, 2011).	Attention Cognition Changes in behaviour	Portable Used to study specific regions of the brain (Plassmann, Zoega Ramsoy & Milosavljevic, 2011)	Expensive (Plassmann, Zoega Ramsoy & Milosavljevic, 2011) Does not penetrate deep structures within the brain.
Steady state topography (SST)	Measures rapid changes in human brain activity. SST has a high resolution that makes it possible for use in testing television	Consumer behaviour Video material Effectiveness Long-term memory Encoding Engagement Emotional intensity	SST involves tracking and observation of rapid changes in brain waves over time. It has the ability to tolerate noise and interference such as	Low spatial resolution

	advertisements using neuromarketing (Orzan, Zara & Purcarea, 2012).	Emotional valence Attention	head movements, tension in the muscles and eye movements	
Magnetoencephalography (MEG)	MEG offers information regarding brain activity that is amplified through a magnetic field (Orzan, Zara & Purcarea, 2012).	Recognition of objects Verbal working memory Recollection of events Perception Attention Memory	MEG has better spatial resolution than EEG. It is the best used to measure activity in known or expected areas that produce activity once given a specific task in comparison to exploratory experiments (Morin, 2011). MEG is a valid and reliable measure of cognitive information processing (Wang et al. 2008).	MEG is limited to picking up surface activity in the brain and is therefore not the preferred method for imaging subcortical areas. The technology is expensive and not suited for higher cognitive (cortical) and emotional (subcortical) functions (Morin, 2011).
Electroencephalogram (EEG)	Records electric activity in the brain. A number of electrodes are placed on the scalp of the respondent through a helmet or band in specific areas so that targeted areas of the brain are reached. Electricity of certain places in the brain is measured and recorded using EEG technology (Bercea, 2011). EEG measures allow left and right hemisphere comparisons in the brain, left hemisphere dominance indicating positive emotional responses and right-hemisphere dominance indicating negative emotional responses (Ohme, Matukin & Pacula-Lesnia, 2011). It is a non-invasive measure Valid for cognitive processing of information (Wang & Minor, 2008).	Impact on memory Approach and avoidance Long-term effect Emotional engagement/boredom Excitement Cognition Recognition Attention	EEG technology is a portable device allowing researchers to make use of this tool in any environment. It is a cost-effective measure that is helpful in assessing the value created by exposure of a stimulus (Morin, 2011).	Electro conductivity differs from respondent to respondent. It is occasionally more challenging to identify the correct brain location and retrieve signal for recording by using the cap and electrodes. EEG measures do not possess spatial resolution meaning that the exact location of the brainwaves cannot be identified. EEG only records activity from superficial layers of the cortex and as a result the electrodes connected to the scalp cannot detect electrical signals beyond the cortex (Bercea, 2011; Morin, 2011). The measure is limited to recording exact cognitive processes that trigger brain activity (Morin, 2011). EEG measures can only identify if the emotion is positive or negative (O'Connel, Walden & Pohlmann, 2011).
Without recording brain activity				
Biometric or physiological measures				
Pupilometer	Device used to measure dilation of a pupil in response to a visual stimulus (Orzan, Zara & Purcarea, 2012).			

Respiratory rate	Number of breaths taken in a minute (Orzan, Zara & Purcarea, 2012).			
Heart rate	Number of heartbeats in one minute (Orzan, Zara & Purcarea, 2012).			
Voice analysis	Records stress responses in the human voice (Orzan, Zara & Purcarea, 2012).			
Galvanic skin response (GSR)	Analysis of subtle changes in electrical activity which is dependent on the moisture level of the skin and when automatic nervous system is activated without recording brain activity (Ohme, Matukin & Pacula – Lesniak, 2011; Orzan, Zara & Purcarea, 2012).	Activation Attention Action Any immediate bodily response Arousal Short-term excitement	Measures degree of arousal.	GSR cannot determine valence of an emotional response (stress and excitement may look similar).
Electromyography (EMG) – facial muscle movements	Muscles in the face register a variety of emotional states. There are predominantly two states of expression namely, observable changes in expression and unobservable micro-muscle changes. Facial expressions indicate positive or negative emotional responses known as emotional valence (Genco, Pohlmann & Steidl, 2013). EMG makes use of small surface electrodes to record movement and activity of the facial muscles during expressions.	Emotion Approach and avoidance Motivation Mood Social communication	The EMG measure tests voluntary and involuntary facial muscle movements reflecting conscious and subconscious emotions (Dimberg, Thunberg & Elmehed, 2000) It is both a sensitive and accurate measure.	Low-frequency artefacts EMG equipment is expensive
Facial coding	Facial coding makes use of a video camera to identify micro expressions that code unconscious, spontaneous reactions.	It is the measure of subconscious reactions that make use of a combination of 43 facial muscles, 23 action units and six core emotions (anger, dislike, envy, fear, sadness, surprise, smile).	Provides real time data.	The challenge regarding the use of facial coding depends on the decision as to when an action meets requirements for coding.
Eye-tracking (ET) – eye movements and fixations	Eye-tracking measures identify the location and path of sight as well as the length of time at which an individual is	Visual fixation Eye movements Spatial resolution Excitement Attention	Eye-tracking is a non-invasive neuromarketing technique that measures the changes in pupil dilation and blink rate	Cost of equipment is expensive. The measure can be unreliable as results

	looking at an image. The technology detects pupil dilation in response to stimuli. Eye-tracking can either be used independently or accompanying other neuromarketing measures.	Pupil dilation Interest Attraction	speed. Eye-tracking is involved in processing of images.	depend on respondents' eye conditions (Wang & Minor, 2008).

ADDENDUM H:

HYPOTHESES ONE TO EIGHT

HYPOTHESIS ONE

Hypothesis One: $H_{1:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1 to text 10
$H_{101:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1
$H_{102:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2
$H_{103:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3
$H_{104:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4
$H_{105:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5
$H_{106:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6
$H_{107:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7
$H_{108:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8
$H_{109:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9
$H_{110:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10

HYPOTHESIS TWO

Hypothesis Two: $H_{2:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other
$H_{201:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 1
$H_{202:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 2
$H_{203:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 3
$H_{204:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 4
$H_{205:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 5
$H_{206:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 6
$H_{207:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 7
$H_{208:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 8
$H_{209:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 9
$H_{210:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 10

HYPOTHESIS THREE

Hypothesis three: $H_{3:}$ Gender neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1 to text 10
$H_{301:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1
$H_{302:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1
$H_{303:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2
$H_{304:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2
$H_{305:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3
$H_{306:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3
$H_{307:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4
$H_{308:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4
$H_{309:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5
$H_{310:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5
$H_{311:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6
$H_{312:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6
$H_{313:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7
$H_{314:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7
$H_{315:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8
$H_{316:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8
$H_{317:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9
$H_{318:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9
$H_{319:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10
$H_{320:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10

HYPOTHESIS FOUR

Hypothesis four: $H_{4:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other
$H_{401:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 1 do not differ from each other
$H_{402:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 2 do not differ from each other
$H_{403:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 3 do not differ from each other
$H_{404:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 4 do not differ from each other
$H_{405:}$ Male neurophysiological measures (a: GSR; b: EMG) for text 5 do not differ from each other
$H_{406:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 6 do not differ from each other
$H_{407:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 7 do not differ from each other
$H_{408:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 8 do not differ from each other
$H_{409:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 9 do not differ from each other
$H_{410:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 10 do not differ from each other

HYPOTHESIS FIVE

Hypothesis five: H_5: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in the gender groups
H_{501}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 1 in the male gender group
H_{502}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 1 in the female gender group
H_{503}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 2 in the male gender group
H_{504}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 2 in the female gender group
H_{505}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 3 in the male gender group
H_{506}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 3 in the female gender group
H_{507}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 4 in the male gender group
H_{508}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 4 in the female gender group
H_{509}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 5 in the male gender group
H_{510}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 5 in the female gender group
H_{511}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 6 in the male gender group
H_{512}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 6 in the female gender group
H_{513}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 7 in the male gender group
H_{514}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 7 in the female gender group
H_{515}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 8 in the male gender group
H_{516}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 8 in the female gender group
H_{517}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 9 in the male gender group

$H_{518:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 9 in the female gender group
$H_{519:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 10 in the male gender group
$H_{520:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 10 in the female gender group

HYPOTHESIS SIX

Hypothesis six: $H_{6:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1 to text 10
$H_{601:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1
$H_{602:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1
$H_{603:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2
$H_{604:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2
$H_{605:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3
$H_{606:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3
$H_{607:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4
$H_{608:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4
$H_{609:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5
$H_{610:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5
$H_{611:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6
$H_{612:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6
$H_{613:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7
$H_{614:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7
$H_{615:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8
$H_{616:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8
$H_{617:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9
$H_{618:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9
$H_{619:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10
$H_{620:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10

HYPOTHESIS SEVEN

Hypothesis seven: $H_{7:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other
$H_{701:}$ Decision basis neurophysiological measures (a: GSR; b: EMG) for text 1 do not differ from each other
$H_{702:}$ Decision basis neurophysiological measures (a: GSR; b: EMG) for text 2 do not differ from each other
$H_{703:}$ Decision basis neurophysiological measures (a: GSR; b: EMG) for text 3 do not differ from each other
$H_{704:}$ Decision basis neurophysiological measures (a: GSR; b: EMG) for text 4 do not differ from each other
$H_{705:}$ Decision basis neurophysiological measures (a: GSR; b: EMG) for text 5 do not differ from each other
$H_{706:}$ Decision basis neurophysiological measures (a: GSR; b: EMG) for text 6 do not differ from each other
$H_{707:}$ Decision basis neurophysiological measures (a: GSR; b: EMG) for text 7 do not differ from each other
$H_{708:}$ Decision basis neurophysiological measures (a: GSR; b: EMG) for text 8 do not differ from each other
$H_{709:}$ Decision basis neurophysiological measures (a: GSR; b: EMG) for text 9 do not differ from each other
$H_{710:}$ Decision basis neurophysiological measures (a: GSR; b: EMG) for text 10 do not differ from each other

HYPOTHESIS EIGHT

Hypothesis eight: $H_{8:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in the decision base group
$H_{801:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 1 amongst rational decision-makers
$H_{802:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 1 amongst emotional decision-makers
$H_{803:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 2 amongst rational decision-makers
$H_{804:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 2 amongst emotional decision-makers
$H_{805:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 3 amongst rational decision-makers
$H_{806:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 3 amongst emotional decision-makers
$H_{807:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 4 amongst rational decision-makers
$H_{808:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 4 amongst emotional decision-makers
$H_{809:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 5 amongst rational decision-makers
$H_{810:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 5 amongst emotional decision-makers
$H_{811:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 6 amongst rational decision-makers
$H_{812:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 6 amongst emotional decision-makers
$H_{813:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 7 amongst rational decision-makers
$H_{814:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 7 amongst emotional decision-makers
$H_{815:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 8 amongst rational decision-makers
$H_{816:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 8 amongst emotional decision-makers
$H_{817:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 9 amongst rational decision-makers

$H_{818:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 9 amongst emotional decision-makers
$H_{819:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 10 amongst rational decision-makers
$H_{820:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 10 amongst emotional decision-makers

ADDENDUM I:

RAW DATA

OVERALL
GENDER
DECISION-BASIS

OVERALL RAW DATA

Text Messages	Group	GSR INDEX				EMG INDEX			
		MEAN RESULTS				MEAN RESULTS			
		GSR	P	T	DF	EMG	P	T	DF
CO Text 1	1	3.20	0.00	3.84	43	0.28	0.32	1.02	39
CO Text 2		3.55	0.00	3.63	43	-0.03	0.76	-0.30	36
CO Text 3		2.02	0.00	3.24	43	-0.14	0.24	-1.20	36
CO Text 4		2.58	0.00	3.17	43	0.25	0.07	1.84	37
CO Text 5		2.59	0.00	3.86	43	0.26	0.39	0.87	37
CO Text 6		3.43	0.00	3.74	43	0.03	0.88	0.15	39
CO Text 7		2.10	0.00	3.45	43	-0.34	0.05	-2.01	38
CO Text 8		2.25	0.00	3.29	43	0.19	0.30	1.04	40
CO Text 9		2.69	0.00	3.74	43	-0.22	0.09	-1.77	37
CO Text 10		2.33	0.01	2.57	43	-0.08	0.76	-0.30	39
RFDRM Text 1	2	2.13	0.01	2.82	41	-0.29	0.05	-2.04	37
RFDRM Text 2		2.42	0.01	2.88	41	0.23	0.15	1.48	40
RFDRM Text 3		2.95	0.00	3.39	41	0.24	0.06	1.93	37
RFDRM Text 4		2.07	0.00	3.09	41	0.14	0.43	0.80	36
RFDRM Text 5		2.93	0.00	3.78	41	-0.29	0.13	-1.55	40
RFDRM Text 6		1.82	0.00	2.98	41	0.03	0.87	0.16	40
RFDRM Text 7		1.03	0.04	2.13	41	-0.22	0.33	-0.98	40
RFDRM Text 8		2.38	0.00	3.49	41	0.24	0.24	1.18	38
RFDRM Text 9		1.75	0.01	2.86	41	0.32	0.03	2.21	38
RFDRM Text 10		2.17	0.00	3.32	41	-0.02	0.93	-0.09	40

GENDER RAW DATA

Text Messages	Group	GENDER (Female - F, Male - M)	GSR INDEX							EMG INDEX						
			MEAN RESULTS				COMPARISON			MEAN RESULTS				COMPARISON		
			GSR	P	T	DF	P	T	DF	EMG	P	T	DF	P	T	DF
CO Text 1	1	F	2.39	0.02	2.49	21	0.34	-0.97	42	0.93	0.05	2.08	20	0.01	2.65	38
		M	4.01	0.01	2.95	21				-0.44	0.06	-1.99	18			
CO Text 2		F	2.72	0.05	2.05	21	0.40	-0.84	42	-0.11	0.54	-0.63	16	0.54	-0.62	35
		M	4.37	0.01	3.03	21				0.03	0.84	0.20	19			
CO Text 3		F	1.15	0.10	1.71	21	0.17	-1.41	42	-0.18	0.24	-1.23	18	0.77	-0.30	35
		M	2.90	0.01	2.80	21				-0.11	0.59	-0.54	17			
CO Text 4		F	1.44	0.08	1.82	21	0.16	-1.43	42	0.17	0.32	1.02	19	0.53	-0.64	36
		M	3.73	0.01	2.66	21				0.34	0.15	1.53	17			
CO Text 5		F	1.54	0.06	1.96	21	0.12	-1.59	42	0.66	0.22	1.27	17	0.20	1.30	36
		M	3.64	0.00	3.44	21				-0.10	0.74	-0.34	19			
CO Text 6		F	2.84	0.03	2.34	21	0.53	-0.64	42	0.42	0.15	1.51	19	0.09	1.71	38
		M	4.02	0.01	2.89	21				-0.35	0.33	-0.99	19			
CO Text 7		F	1.44	0.08	1.82	21	0.28	-1.09	42	-0.66	0.03	-2.32	19	0.05	-1.99	37
		M	2.76	0.01	2.99	21				-0.01	0.96	-0.05	18			
CO Text 8		F	1.44	0.08	1.82	21	0.24	-1.20	42	0.46	0.05	2.07	19	0.15	1.46	39
		M	3.07	0.01	2.77	21				-0.07	0.82	-0.23	20			
CO Text 9		F	2.78	0.01	2.80	21	0.91	0.12	42	-0.35	0.05	-2.05	19	0.30	-1.06	36
		M	2.61	0.02	2.44	21				-0.08	0.66	-0.44	17			
CO Text 10		F	0.96	0.16	1.45	21	0.13	-1.54	42	0.45	0.32	1.03	18	0.05	2.03	38
		M	3.70	0.04	2.23	21				-0.55	0.04	-2.17	20			
RFDRM Text 1	2	F	1.61	0.15	1.49	18	0.54	-0.62	40	-0.44	0.02	-2.46	18	0.29	-1.07	36
		M	2.56	0.03	2.40	22				-0.14	0.54	-0.63	18			
RFDRM Text 2		F	3.14	0.06	2.01	18	0.45	0.77	40	0.27	0.20	1.32	18	0.83	0.22	39
		M	1.83	0.04	2.15	22				0.20	0.41	0.84	21			
RFDRM Text 3		F	1.69	0.08	1.84	18	0.19	-1.33	40	0.38	0.11	1.68	16	0.33	0.98	36
		M	4.00	0.01	2.90	22				0.13	0.34	0.98	20			
RFDRM Text 4		F	1.25	0.17	1.45	18	0.27	-1.12	40	0.25	0.39	0.88	18	0.50	0.69	35

		M	2.75	0.01	2.79	22				0.02	0.94	0.08	17			
RFDRM Text 5		F	4.26	0.01	3.19	18	0.12	1.59	40	-0.42	0.22	-1.26	18	0.54	-0.62	39
		M	1.83	0.04	2.15	22				-0.18	0.39	-0.88	21			
RFDRM Text 6		F	2.22	0.04	2.19	18	0.57	0.58	40	0.01	0.97	0.03	18	0.93	-0.09	39
		M	1.50	0.06	1.98	22				0.05	0.78	0.29	21			
RFDRM Text 7		F	0.61	0.28	1.10	18	0.44	-0.78	40	0.00	0.99	-0.01	19	0.35	0.94	39
		M	1.37	0.08	1.82	22				-0.42	0.13	-1.58	20			
RFDRM Text 8		F	1.72	0.08	1.83	18	0.39	-0.87	40	0.52	0.16	1.45	18	0.19	1.32	37
		M	2.92	0.01	2.99	22				-0.02	0.93	-0.09	19			
RFDRM Text 9		F	2.22	0.04	2.19	18	0.50	0.68	40	0.29	0.25	1.19	17	0.85	-0.19	37
		M	1.37	0.08	1.82	22				0.34	0.06	1.97	20			
RFDRM Text 10		F	1.48	0.09	1.80	18	0.34	-0.97	40	0.01	0.98	0.02	18	0.90	0.12	39
		M	2.75	0.01	2.79	22				-0.04	0.75	-0.32	21			

DECISION-BASIS RAW DATA

Text Messages	Group	Emotional - 1 Rational - 2	GSR INDEX							EMG INDEX						
			MEAN RESULTS				COMPARISON			MEAN RESULTS				COMPARISON		
			GSR	P	T	DF	P	T	DF	EMG	P	T	DF	P	T	DF
CO Text 1	1	Emotional	4.32	0.01	2.99	19	0.23	1.23	42	0.77	0.18	1.40	17	0.11	1.62	38
		Rational	2.28	0.02	2.45	23				-0.12	0.57	-0.58	21			
CO Text 2		Emotional	4.69	0.01	2.80	19	0.29	1.07	42	-0.06	0.75	-0.32	15	0.85	-0.18	35
		Rational	2.59	0.03	2.32	23				-0.02	0.92	-0.11	20			
CO Text 3		Emotional	2.70	0.02	2.51	19	0.33	0.99	42	0.12	0.38	0.90	14	0.07	1.85	35
		Rational	1.46	0.05	2.04	23				-0.32	0.08	-1.85	21			
CO Text 4		Emotional	2.49	0.09	1.78	19	0.92	-0.10	42	0.06	0.74	0.33	16	0.23	-1.23	36
		Rational	2.66	0.01	2.77	23				0.40	0.04	2.15	20			
CO Text 5		Emotional	3.80	0.00	3.34	19	0.10	1.68	42	0.40	0.52	0.66	17	0.65	0.45	36
		Rational	1.58	0.04	2.13	23				0.13	0.45	0.77	19			
CO Text 6		Emotional	4.03	0.02	2.59	19	0.56	0.59	42	-0.26	0.55	-0.61	16	0.27	-1.11	38
		Rational	2.93	0.01	2.68	23				0.26	0.31	1.04	22			
CO Text 7		Emotional	1.58	0.08	1.83	19	0.44	-0.77	42	-0.42	0.24	-1.21	16	0.71	-0.37	37
		Rational	2.53	0.01	2.95	23				-0.29	0.08	-1.87	21			
CO Text 8		Emotional	2.63	0.02	2.52	19	0.62	0.50	42	0.12	0.55	0.62	17	0.75	-0.32	39
		Rational	1.94	0.05	2.11	23				0.24	0.41	0.84	22			
CO Text 9		Emotional	2.63	0.02	2.52	19	0.94	-0.08	42	-0.16	0.41	-0.84	16	0.68	0.42	36
		Rational	2.75	0.01	2.71	23				-0.27	0.12	-1.60	20			
CO Text 10		Emotional	2.70	0.14	1.54	19	0.71	0.37	42	0.29	0.54	0.62	18	0.18	1.36	38
		Rational	2.02	0.02	2.42	23				-0.41	0.12	-1.65	20			
RFDRM Text 1	2	Emotional	1.52	0.18	1.40	18	0.47	-0.73	40	-0.21	0.12	-1.65	16	0.64	0.48	36
		Rational	2.64	0.02	2.49	22				-0.35	0.15	-1.48	20			
RFDRM Text 2		Emotional	1.66	0.08	1.84	18	0.42	-0.82	40	0.16	0.55	0.61	18	0.67	-0.43	39
		Rational	3.05	0.03	2.26	22				0.30	0.14	1.54	21			
RFDRM Text 3		Emotional	1.69	0.08	1.84	18	0.19	-1.33	40	0.29	0.11	1.72	16	0.75	0.32	36
		Rational	4.00	0.01	2.90	22				0.21	0.28	1.11	20			
RFDRM Text 4		Emotional	1.11	0.16	1.46	18	0.20	-1.32	40	0.45	0.11	1.70	16	0.10	1.71	35

		Rational	2.86	0.01	2.77	22				-0.13	0.56	-0.59	19			
RFDRM Text 5		Emotional	3.03	0.02	2.50	18	0.91	0.11	40	-0.38	0.28	-1.12	16	0.69	-0.40	39
		Rational	2.85	0.01	2.78	22				-0.23	0.31	-1.04	23			
RFDRM Text 6		Emotional	1.11	0.16	1.46	18	0.29	-1.06	40	-0.21	0.65	-0.46	16	0.32	-1.00	39
		Rational	2.41	0.02	2.62	22				0.21	0.15	1.48	23			
RFDRM Text 7		Emotional	0.61	0.28	1.10	18	0.44	-0.78	40	-0.18	0.57	-0.58	16	0.88	0.15	39
		Rational	1.37	0.08	1.82	22				-0.25	0.45	-0.78	23			
RFDRM Text 8		Emotional	0.61	0.33	1.00	18	0.02	-2.50	40	0.34	0.48	0.73	14	0.71	0.37	37
		Rational	3.84	0.00	3.63	22				0.18	0.30	1.05	23			
RFDRM Text 9		Emotional	2.22	0.04	2.19	18	0.50	0.68	40	0.20	0.50	0.69	15	0.50	-0.69	37
		Rational	1.37	0.08	1.82	22				0.40	0.01	2.77	22			
RFDRM Text 10		Emotional	2.77	0.02	2.54	18	0.41	0.83	40	0.25	0.37	0.92	16	0.28	1.09	39
		Rational	1.68	0.05	2.12	22				-0.21	0.49	-0.71	23			

GSR OVERALL COMPARISONS: NON-PROFIT ONE

P	CO Text 1	CO Text 2	CO Text 3	CO Text 4	CO Text 5	CO Text 6	CO Text 7	CO Text 8	CO Text 9	CO Text 10
CO Text 1	1	0.789306329	0.261195478	0.596260149	0.568738792	0.853807463	0.286105359	0.381290678	0.645408125	0.478594053
CO Text 2	0.789306329	1	0.192559192	0.450461921	0.421729565	0.931917908	0.210329291	0.281097171	0.484049781	0.362101824
CO Text 3	0.261195478	0.192559192	1	0.587583486	0.538374168	0.208594298	0.935029336	0.805378133	0.484912823	0.783833418
CO Text 4	0.596260149	0.450461921	0.587583486	1	0.994313407	0.49106576	0.632502055	0.757383397	0.919212217	0.833895028
CO Text 5	0.568738792	0.421729565	0.538374168	0.994313407	1	0.461466227	0.585719539	0.725806271	0.916864371	0.815526622
CO Text 6	0.853807463	0.931917908	0.208594298	0.49106576	0.461466227	1	0.228260199	0.306490762	0.52896727	0.393913967
CO Text 7	0.286105359	0.210329291	0.935029336	0.632502055	0.585719539	0.228260199	1	0.863472847	0.527521903	0.832366823
CO Text 8	0.381290678	0.281097171	0.805378133	0.757383397	0.725806271	0.306490762	0.863472847	1	0.659022497	0.948455212
CO Text 9	0.645408125	0.484049781	0.484912823	0.919212217	0.916864371	0.52896727	0.527521903	0.659022497	1	0.752102349
CO Text 10	0.478594053	0.362101824	0.783833418	0.833895028	0.815526622	0.393913967	0.832366823	0.948455212	0.752102349	1
RFDRM Text 1	0.345037654	0.257839172	0.913327942	0.685801958	0.649690601	0.279704443	0.970823764	0.904569465	0.591393197	0.869008931
RFDRM Text 2	0.510605747	0.386294337	0.704809529	0.889572431	0.873830667	0.420015051	0.753538849	0.877688734	0.804937561	0.940244256
RFDRM Text 3	0.835746585	0.651614303	0.385800064	0.757385815	0.74164567	0.706057676	0.418496024	0.52777887	0.819066689	0.620461211
RFDRM Text 4	0.294000269	0.218931944	0.962095625	0.627862546	0.582653739	0.236863955	0.975589015	0.846904394	0.527214508	0.819766854
RFDRM Text 5	0.809435408	0.622218953	0.365230256	0.760979535	0.743076445	0.676658103	0.39865845	0.515777721	0.826136086	0.617542455
RFDRM Text 6	0.188931693	0.14250701	0.818585263	0.460601222	0.401316221	0.152402393	0.752634717	0.641361611	0.361816303	0.648688953
RFDRM Text 7	0.028317382	0.025149142	0.213177592	0.107987475	0.063945898	0.024773507	0.174665964	0.150333183	0.060526743	0.214790306
RFDRM Text 8	0.448249467	0.333253363	0.702785869	0.847974946	0.824562555	0.362978834	0.757433717	0.897851441	0.751565573	0.964518456
RFDRM Text 9	0.168152423	0.127524906	0.758207333	0.421223382	0.360771998	0.135922664	0.693048643	0.589108329	0.325451382	0.604639378
RFDRM Text 10	0.335842402	0.249360449	0.871783979	0.695592341	0.655524039	0.270472764	0.933045484	0.930712479	0.593628433	0.889900038

GSR OVERALL COMPARISONS: NON-PROFIT TWO

P	RFDRM Text 1	RFDRM Text 2	RFDRM Text 3	RFDRM Text 4	RFDRM Text 5	RFDRM Text 6	RFDRM Text 7	RFDRM Text 8	RFDRM Text 9	RFDRM Text 10
CO Text 1	0.345037654	0.510605747	0.835746585	0.294000269	0.809435408	0.188931693	0.028317382	0.448249467	0.168152423	0.335842402
CO Text 2	0.257839172	0.386294337	0.651614303	0.218931944	0.622218953	0.14250701	0.025149142	0.333253363	0.127524906	0.249360449
CO Text 3	0.913327942	0.704809529	0.385800064	0.962095625	0.365230256	0.818585263	0.213177592	0.702785869	0.758207333	0.871783979
CO Text 4	0.685801958	0.889572431	0.757385815	0.627862546	0.760979535	0.460601222	0.107987475	0.847974946	0.421223382	0.695592341
CO Text 5	0.649690601	0.873830667	0.74164567	0.582653739	0.743076445	0.401316221	0.063945898	0.824562555	0.360771998	0.655524039
CO Text 6	0.279704443	0.420015051	0.706057676	0.236863955	0.676658103	0.152402393	0.024773507	0.362978834	0.135922664	0.270472764
CO Text 7	0.970823764	0.753538849	0.418496024	0.975589015	0.39865845	0.752634717	0.174665964	0.757433717	0.693048643	0.933045484
CO Text 8	0.904569465	0.877688734	0.52777887	0.846904394	0.515777721	0.641361611	0.150333183	0.897851441	0.589108329	0.930712479
CO Text 9	0.591393197	0.804937561	0.819066689	0.527214508	0.826136086	0.361816303	0.060526743	0.751565573	0.325451382	0.593628433
CO Text 10	0.869008931	0.940244256	0.620461211	0.819766854	0.617542455	0.648688953	0.214790306	0.964518456	0.604639378	0.889900038
RFDRM Text 1	1	0.798850002	0.478416426	0.950306182	0.464490433	0.752191826	0.222081587	0.808969293	0.699264709	0.968406852
RFDRM Text 2	0.798850002	1	0.66143307	0.743868126	0.65893817	0.567315168	0.154679315	0.969009475	0.523644521	0.815507394
RFDRM Text 3	0.478416426	0.66143307	1	0.422861725	0.982662679	0.291669216	0.056599513	0.604983101	0.263571592	0.475085246
RFDRM Text 4	0.950306182	0.743868126	0.422861725	1	0.403897228	0.787552985	0.210560647	0.746274065	0.729908526	0.912747907
RFDRM Text 5	0.464490433	0.65893817	0.982662679	0.403897228	1	0.266839074	0.040597218	0.596412055	0.23853243	0.458171966
RFDRM Text 6	0.752191826	0.567315168	0.291669216	0.787552985	0.266839074	1	0.31025464	0.546224247	0.936537902	0.698753433
RFDRM Text 7	0.222081587	0.154679315	0.056599513	0.210560647	0.040597218	0.31025464	1	0.109728196	0.354409312	0.163350824
RFDRM Text 8	0.808969293	0.969009475	0.604983101	0.746274065	0.596412055	0.546224247	0.109728196	1	0.497812833	0.826973289
RFDRM Text 9	0.699264709	0.523644521	0.263571592	0.729908526	0.23853243	0.936537902	0.354409312	0.497812833	1	0.643000262
RFDRM Text 10	0.968406852	0.815507394	0.475085246	0.912747907	0.458171966	0.698753433	0.163350824	0.826973289	0.643000262	1

GSR FEMALE COMPARISON: NON-PROFIT ONE

P	CO Text 1	CO Text 2	CO Text 3	CO Text 4	CO Text 5	CO Text 6	CO Text 7	CO Text 8	CO Text 9	CO Text 10
CO Text 1	1	0.841377093	0.298113117	0.44612451	0.498241698	0.772176448	0.44612451	0.44612451	0.780588765	0.225678099
CO Text 2	0.841377093	1	0.29789544	0.408973536	0.448725817	0.946229712	0.408973536	0.408973536	0.972286486	0.240174928
CO Text 3	0.298113117	0.29789544	1	0.787121241	0.708714271	0.231192346	0.787121241	0.787121241	0.183176902	0.836444205
CO Text 4	0.44612451	0.408973536	0.787121241	1	0.923343952	0.336739608	1	1	0.295246684	0.644127377
CO Text 5	0.498241698	0.448725817	0.708714271	0.923343952	1	0.37425832	0.923343952	0.923343952	0.334697239	0.571080652
CO Text 6	0.772176448	0.946229712	0.231192346	0.336739608	0.37425832	1	0.336739608	0.336739608	0.967607879	0.180096571
CO Text 7	0.44612451	0.408973536	0.787121241	1	0.923343952	0.336739608	1	1	0.295246684	0.644127377
CO Text 8	0.44612451	0.408973536	0.787121241	1	0.923343952	0.336739608	1	1	0.295246684	0.644127377
CO Text 9	0.780588765	0.972286486	0.183176902	0.295246684	0.334697239	0.967607879	0.295246684	0.295246684	1	0.134116898
CO Text 10	0.225678099	0.240174928	0.836444205	0.644127377	0.571080652	0.180096571	0.644127377	0.644127377	0.134116898	1
RFDRM Text 1	0.590993222	0.528046365	0.714231182	0.894769005	0.959432308	0.459339314	0.894769005	0.894769005	0.430255278	0.598177273
RFDRM Text 2	0.679009097	0.840314218	0.228878345	0.317680512	0.348649205	0.882514935	0.317680512	0.317680512	0.84487908	0.184907159
RFDRM Text 3	0.603401132	0.538355357	0.635629463	0.834361045	0.904201018	0.464601473	0.834361045	0.834361045	0.43036141	0.513854426
RFDRM Text 4	0.388304484	0.374079895	0.930311415	0.873708127	0.801893394	0.305591807	0.873708127	0.873708127	0.259352094	0.787013859
RFDRM Text 5	0.255380281	0.422272027	0.036807313	0.067597184	0.07807398	0.438553352	0.067597184	0.067597184	0.372837803	0.026123318
RFDRM Text 6	0.900364694	0.768746114	0.376347109	0.540968681	0.597591577	0.698905164	0.540968681	0.540968681	0.69415636	0.291531143
RFDRM Text 7	0.13203878	0.172563022	0.546686717	0.411557182	0.352830413	0.121024113	0.411557182	0.411557182	0.075673921	0.695859049
RFDRM Text 8	0.622812934	0.553097053	0.619639935	0.815581491	0.884385332	0.479647358	0.815581491	0.815581491	0.447479644	0.500719996
RFDRM Text 9	0.900364694	0.768746114	0.376347109	0.540968681	0.597591577	0.698905164	0.540968681	0.540968681	0.69415636	0.291531143
RFDRM Text 10	0.480156077	0.445930017	0.760720497	0.971868599	0.953104265	0.372069383	0.971868599	0.971868599	0.326721704	0.62080715

GSR FEMALE COMPARISON: NON-PROFIT TWO

P	RFDRM Text 1	RFDRM Text 2	RFDRM Text 3	RFDRM Text 4	RFDRM Text 5	RFDRM Text 6	RFDRM Text 7	RFDRM Text 8	RFDRM Text 9	RFDRM Text 10
CO Text 1	0.590993222	0.679009097	0.603401132	0.388304484	0.255380281	0.900364694	0.13203878	0.622812934	0.900364694	0.480156077
CO Text 2	0.528046365	0.840314218	0.538355357	0.374079895	0.422272027	0.768746114	0.172563022	0.553097053	0.768746114	0.445930017
CO Text 3	0.714231182	0.228878345	0.635629463	0.930311415	0.036807313	0.376347109	0.546686717	0.619639935	0.376347109	0.760720497
CO Text 4	0.894769005	0.317680512	0.834361045	0.873708127	0.067597184	0.540968681	0.411557182	0.815581491	0.540968681	0.971868599
CO Text 5	0.959432308	0.348649205	0.904201018	0.801893394	0.07807398	0.597591577	0.352830413	0.884385332	0.597591577	0.953104265
CO Text 6	0.459339314	0.882514935	0.464601473	0.305591807	0.438553352	0.698905164	0.121024113	0.479647358	0.698905164	0.372069383
CO Text 7	0.894769005	0.317680512	0.834361045	0.873708127	0.067597184	0.540968681	0.411557182	0.815581491	0.540968681	0.971868599
CO Text 8	0.894769005	0.317680512	0.834361045	0.873708127	0.067597184	0.540968681	0.411557182	0.815581491	0.540968681	0.971868599
CO Text 9	0.430255278	0.84487908	0.43036141	0.259352094	0.372837803	0.69415636	0.075673921	0.447479644	0.69415636	0.326721704
CO Text 10	0.598177273	0.184907159	0.513854426	0.787013859	0.026123318	0.291531143	0.695859049	0.500719996	0.291531143	0.62080715
RFDRM Text 1	1	0.427412092	0.956236669	0.795237098	0.132040743	0.684926648	0.416243735	0.938864752	0.684926648	0.921507941
RFDRM Text 2	0.427412092	1	0.430080856	0.2975378	0.588761123	0.62432021	0.136468097	0.442664155	0.62432021	0.35293028
RFDRM Text 3	0.956236669	0.430080856	1	0.729156052	0.121716597	0.702007016	0.322146871	0.980625836	0.702007016	0.863596873
RFDRM Text 4	0.795237098	0.2975378	0.729156052	1	0.066417625	0.471737588	0.538533317	0.713230451	0.471737588	0.849596193
RFDRM Text 5	0.132040743	0.588761123	0.121716597	0.066417625	1	0.230844104	0.016122636	0.128699241	0.230844104	0.083994479
RFDRM Text 6	0.684926648	0.62432021	0.702007016	0.471737588	0.230844104	1	0.172567977	0.721774352	1	0.572945038
RFDRM Text 7	0.416243735	0.136468097	0.322146871	0.538533317	0.016122636	0.172567977	1	0.315146227	0.172567977	0.387401249
RFDRM Text 8	0.938864752	0.442664155	0.980625836	0.713230451	0.128699241	0.721774352	0.315146227	1	0.721774352	0.845010798
RFDRM Text 9	0.684926648	0.62432021	0.702007016	0.471737588	0.230844104	1	0.172567977	0.721774352	1	0.572945038
RFDRM Text 10	0.921507941	0.35293028	0.863596873	0.849596193	0.083994479	0.572945038	0.387401249	0.845010798	0.572945038	1

GSR MALE COMPARISON: NON-PROFIT ONE

P	CO Text 1	CO Text 2	CO Text 3	CO Text 4	CO Text 5	CO Text 6	CO Text 7	CO Text 8	CO Text 9	CO Text 10
CO Text 1	1	0.857586228	0.51711084	0.885840602	0.828889653	0.997398646	0.448810766	0.595009608	0.421341834	0.883440505
CO Text 2	0.857586228	1	0.41033885	0.751706913	0.683850377	0.861568713	0.350458829	0.479101923	0.331209301	0.76018947
CO Text 3	0.51711084	0.41033885	1	0.634265543	0.618379659	0.520682871	0.920194911	0.908231662	0.847344542	0.68343094
CO Text 4	0.885840602	0.751706913	0.634265543	1	0.958180559	0.884541073	0.564343642	0.714393238	0.527456326	0.987657856
CO Text 5	0.828889653	0.683850377	0.618379659	0.958180559	1	0.828412012	0.532729521	0.713713849	0.496680372	0.97621606
CO Text 6	0.997398646	0.861568713	0.520682871	0.884541073	0.828412012	1	0.453475877	0.597492201	0.425678008	0.882177043
CO Text 7	0.448810766	0.350458829	0.920194911	0.564343642	0.532729521	0.453475877	1	0.827894815	0.916686848	0.621862634
CO Text 8	0.595009608	0.479101923	0.908231662	0.714393238	0.713713849	0.597492201	0.827894815	1	0.764772324	0.755239686
CO Text 9	0.421341834	0.331209301	0.847344542	0.527456326	0.496680372	0.425678008	0.916686848	0.764772324	1	0.583095612
CO Text 10	0.883440505	0.76018947	0.68343094	0.987657856	0.97621606	0.882177043	0.621862634	0.755239686	0.583095612	1
RFDRM Text 1	0.403577487	0.315415949	0.823195684	0.507929113	0.477464636	0.407818953	0.89110323	0.741753996	0.975647003	0.563489033
RFDRM Text 2	0.176994623	0.132235903	0.4287434	0.248141157	0.187829198	0.182469436	0.463425789	0.377074256	0.570042595	0.315060769
RFDRM Text 3	0.992808245	0.851360675	0.529339075	0.893475383	0.838899283	0.990297886	0.462546265	0.606160297	0.433019303	0.889961253
RFDRM Text 4	0.451717927	0.353104794	0.916424163	0.565316484	0.539379319	0.45588935	0.99348292	0.82647404	0.92505173	0.61992327
RFDRM Text 5	0.176994623	0.132235903	0.4287434	0.248141157	0.187829198	0.182469436	0.463425789	0.377074256	0.570042595	0.315060769
RFDRM Text 6	0.109762785	0.080971342	0.278555498	0.1633216	0.104725366	0.11473779	0.295191334	0.244409077	0.397934763	0.226813485
RFDRM Text 7	0.093529777	0.068916123	0.237991243	0.141305321	0.086340797	0.098156868	0.249972418	0.20916662	0.346891196	0.201687188
RFDRM Text 8	0.515480442	0.406035685	0.985966392	0.635643267	0.62067144	0.519050297	0.903149888	0.919109855	0.829583382	0.685258498
RFDRM Text 9	0.093529777	0.068916123	0.237991243	0.141305321	0.086340797	0.098156868	0.249972418	0.20916662	0.346891196	0.201687188
RFDRM Text 10	0.451717927	0.353104794	0.916424163	0.565316484	0.539379319	0.45588935	0.99348292	0.82647404	0.92505173	0.61992327

GSR MALE COMPARISON: NON-PROFIT TWO

P	RFDRM Text 1	RFDRM Text 2	RFDRM Text 3	RFDRM Text 4	RFDRM Text 5	RFDRM Text 6	RFDRM Text 7	RFDRM Text 8	RFDRM Text 9	RFDRM Text 10
CO Text 1	0.403577487	0.176994623	0.992808245	0.451717927	0.176994623	0.109762785	0.093529777	0.515480442	0.093529777	0.451717927
CO Text 2	0.315415949	0.132235903	0.851360675	0.353104794	0.132235903	0.080971342	0.068916123	0.406035685	0.068916123	0.353104794
CO Text 3	0.823195684	0.4287434	0.529339075	0.916424163	0.4287434	0.278555498	0.237991243	0.985966392	0.237991243	0.916424163
CO Text 4	0.507929113	0.248141157	0.893475383	0.565316484	0.248141157	0.1633216	0.141305321	0.635643267	0.141305321	0.565316484
CO Text 5	0.477464636	0.187829198	0.838899283	0.539379319	0.187829198	0.104725366	0.086340797	0.62067144	0.086340797	0.539379319
CO Text 6	0.407818953	0.182469436	0.990297886	0.45588935	0.182469436	0.11473779	0.098156868	0.519050297	0.098156868	0.45588935
CO Text 7	0.89110323	0.463425789	0.462546265	0.99348292	0.463425789	0.295191334	0.249972418	0.903149888	0.249972418	0.99348292
CO Text 8	0.741753996	0.377074256	0.606160297	0.82647404	0.377074256	0.244409077	0.20916662	0.919109855	0.20916662	0.82647404
CO Text 9	0.975647003	0.570042595	0.433019303	0.92505173	0.570042595	0.397934763	0.346891196	0.829583382	0.346891196	0.92505173
CO Text 10	0.563489033	0.315060769	0.889961253	0.61992327	0.315060769	0.226813485	0.201687188	0.685258498	0.201687188	0.61992327
RFDRM Text 1	1	0.594413391	0.414690176	0.899896524	0.594413391	0.420445065	0.367825291	0.80493303	0.367825291	0.899896524
RFDRM Text 2	0.594413391	1	0.187858757	0.485683009	1	0.772255624	0.689484203	0.404616891	0.689484203	0.485683009
RFDRM Text 3	0.414690176	0.187858757	1	0.464131184	0.187858757	0.119192903	0.102116273	0.528011079	0.102116273	0.464131184
RFDRM Text 4	0.899896524	0.485683009	0.464131184	1	0.485683009	0.32095833	0.274933479	0.89977746	0.274933479	1
RFDRM Text 5	0.594413391	1	0.187858757	0.485683009	1	0.772255624	0.689484203	0.404616891	0.689484203	0.485683009
RFDRM Text 6	0.420445065	0.772255624	0.119192903	0.32095833	0.772255624	1	0.90650906	0.256226261	0.90650906	0.32095833
RFDRM Text 7	0.367825291	0.689484203	0.102116273	0.274933479	0.689484203	0.90650906	1	0.217008283	1	0.274933479
RFDRM Text 8	0.80493303	0.404616891	0.528011079	0.89977746	0.404616891	0.256226261	0.217008283	1	0.217008283	0.89977746
RFDRM Text 9	0.367825291	0.689484203	0.102116273	0.274933479	0.689484203	0.90650906	1	0.217008283	1	0.274933479
RFDRM Text 10	0.899896524	0.485683009	0.464131184	1	0.485683009	0.32095833	0.274933479	0.89977746	0.274933479	1

GSR RATIONAL DECISION-MAKERS COMPARISON: NON-PROFIT ONE

P	CO Text 1	CO Text 2	CO Text 3	CO Text 4	CO Text 5	CO Text 6	CO Text 7	CO Text 8	CO Text 9	CO Text 10
CO Text 1	1	0.826609286	0.490760006	0.774335484	0.562802635	0.648399703	0.842584479	0.798436245	0.733020886	0.838176796
CO Text 2	0.826609286	1	0.397116078	0.964787143	0.454137803	0.82925645	0.961952801	0.652635509	0.920184352	0.681412319
CO Text 3	0.490760006	0.397116078	1	0.322210395	0.907246307	0.266438653	0.344800927	0.683093016	0.305911058	0.614811372
CO Text 4	0.774335484	0.964787143	0.322210395	1	0.379516673	0.851744241	0.918248495	0.590475575	0.950844294	0.616790122
CO Text 5	0.562802635	0.454137803	0.907246307	0.379516673	1	0.312771514	0.409235176	0.763604168	0.359335817	0.698131149
CO Text 6	0.648399703	0.82925645	0.266438653	0.851744241	0.312771514	1	0.771329652	0.490421845	0.90072315	0.509903807
CO Text 7	0.842584479	0.961952801	0.344800927	0.918248495	0.409235176	0.771329652	1	0.642302546	0.869466072	0.672913094
CO Text 8	0.798436245	0.652635509	0.683093016	0.590475575	0.763604168	0.490421845	0.642302546	1	0.558321894	0.949596248
CO Text 9	0.733020886	0.920184352	0.305911058	0.950844294	0.359335817	0.90072315	0.869466072	0.558321894	1	0.582270375
CO Text 10	0.838176796	0.681412319	0.614811372	0.616790122	0.698131149	0.509903807	0.672913094	0.949596248	0.582270375	1
RFDRM Text 1	0.796936543	0.977366025	0.358560392	0.988122365	0.415616408	0.847493795	0.93491814	0.619806491	0.941634059	0.6466611
RFDRM Text 2	0.63647801	0.796292307	0.298188756	0.814771549	0.340528851	0.94808287	0.743896153	0.49709208	0.858507168	0.515669809
RFDRM Text 3	0.301736665	0.43150474	0.105272169	0.427142325	0.125699444	0.54747902	0.365633212	0.217017774	0.466211512	0.221573459
RFDRM Text 4	0.673850899	0.86166065	0.267393968	0.886792075	0.316774355	0.961996577	0.803556373	0.507152447	0.93698485	0.52704634
RFDRM Text 5	0.681292836	0.869655575	0.270740347	0.895543445	0.320759795	0.953251676	0.812231332	0.513085911	0.945744168	0.533373637
RFDRM Text 6	0.915458781	0.901853695	0.415395775	0.854534678	0.483377351	0.719381464	0.928897688	0.716748417	0.809904462	0.75110304
RFDRM Text 7	0.457070506	0.373739879	0.933005841	0.300710136	0.844734183	0.251063763	0.319511248	0.637825869	0.286544859	0.570597386
RFDRM Text 8	0.271160743	0.423915168	0.067008926	0.413376538	0.085482509	0.556607138	0.338786032	0.180890316	0.460282065	0.181639735
RFDRM Text 9	0.457070506	0.373739879	0.933005841	0.300710136	0.844734183	0.251063763	0.319511248	0.637825869	0.286544859	0.570597386
RFDRM Text 10	0.627400778	0.508994575	0.840278258	0.43574949	0.930640695	0.360809246	0.470761104	0.830049779	0.412684689	0.76825046

GSR RATIONAL DECISION-MAKERS COMPARISON: NON-PROFIT TWO

P	RFDRM Text 1	RFDRM Text 2	RFDRM Text 3	RFDRM Text 4	RFDRM Text 5	RFDRM Text 6	RFDRM Text 7	RFDRM Text 8	RFDRM Text 9	RFDRM Text 10
CO Text 1	0.796936543	0.63647801	0.301736665	0.673850899	0.681292836	0.915458781	0.457070506	0.271160743	0.457070506	0.627400778
CO Text 2	0.977366025	0.796292307	0.43150474	0.86166065	0.869655575	0.901853695	0.373739879	0.423915168	0.373739879	0.508994575
CO Text 3	0.358560392	0.298188756	0.105272169	0.267393968	0.270740347	0.415395775	0.933005841	0.067008926	0.933005841	0.840278258
CO Text 4	0.988122365	0.814771549	0.427142325	0.886792075	0.895543445	0.854534678	0.300710136	0.413376538	0.300710136	0.43574949
CO Text 5	0.415616408	0.340528851	0.125699444	0.316774355	0.320759795	0.483377351	0.844734183	0.085482509	0.844734183	0.930640695
CO Text 6	0.847493795	0.94808287	0.54747902	0.961996577	0.953251676	0.719381464	0.251063763	0.556607138	0.251063763	0.360809246
CO Text 7	0.93491814	0.743896153	0.365633212	0.803556373	0.812231332	0.928897688	0.319511248	0.338786032	0.319511248	0.470761104
CO Text 8	0.619806491	0.49709208	0.217017774	0.507152447	0.513085911	0.716748417	0.637825869	0.180890316	0.637825869	0.830049779
CO Text 9	0.941634059	0.858507168	0.466211512	0.93698485	0.945744168	0.809904462	0.286544859	0.460282065	0.286544859	0.412684689
CO Text 10	0.6466611	0.515669809	0.221573459	0.52704634	0.533373637	0.75110304	0.570597386	0.181639735	0.570597386	0.76825046
RFDRM Text 1	1	0.81267145	0.438962543	0.880869633	0.889169803	0.873819305	0.336396026	0.427609534	0.336396026	0.471026124
RFDRM Text 2	0.81267145	1	0.624665904	0.913428511	0.905579671	0.69983581	0.284191164	0.646835638	0.284191164	0.384969308
RFDRM Text 3	0.438962543	0.624665904	1	0.513256819	0.506149243	0.344769205	0.102116273	0.927014775	0.102116273	0.151332509
RFDRM Text 4	0.880869633	0.913428511	0.513256819	1	0.991074615	0.747849433	0.250899615	0.512530899	0.250899615	0.3672185
RFDRM Text 5	0.889169803	0.905579671	0.506149243	0.991074615	1	0.755834726	0.253900597	0.504038291	0.253900597	0.371689189
RFDRM Text 6	0.873819305	0.69983581	0.344769205	0.747849433	0.755834726	1	0.386449831	0.315267172	0.386449831	0.546289162
RFDRM Text 7	0.336396026	0.284191164	0.102116273	0.250899615	0.253900597	0.386449831	1	0.064300463	1	0.782520626
RFDRM Text 8	0.427609534	0.646835638	0.927014775	0.512530899	0.504038291	0.315267172	0.064300463	1	0.064300463	0.108645491
RFDRM Text 9	0.336396026	0.284191164	0.102116273	0.250899615	0.253900597	0.386449831	1	0.064300463	1	0.782520626
RFDRM Text 10	0.471026124	0.384969308	0.151332509	0.3672185	0.371689189	0.546289162	0.782520626	0.108645491	0.782520626	1

GSR EMOTIONAL DECISION-MAKERS COMPARISON: NON-PROFIT ONE

P	CO Text 1	CO Text 2	CO Text 3	CO Text 4	CO Text 5	CO Text 6	CO Text 7	CO Text 8	CO Text 9	CO Text 10
CO Text 1	1	0.866964763	0.375516658	0.369990026	0.781051356	0.893318085	0.112042202	0.350650867	0.350650867	0.479620335
CO Text 2	0.866964763	1	0.324174276	0.320276034	0.663490341	0.77442894	0.106970375	0.303765329	0.303765329	0.415668753
CO Text 3	0.375516658	0.324174276	1	0.906043016	0.486257631	0.486492145	0.420400651	0.962890415	0.962890415	0.99879981
CO Text 4	0.369990026	0.320276034	0.906043016	1	0.471904713	0.466622949	0.581810383	0.936788599	0.936788599	0.926941162
CO Text 5	0.781051356	0.663490341	0.486257631	0.471904713	1	0.906343072	0.127614795	0.453211761	0.453211761	0.599514364
CO Text 6	0.893318085	0.77442894	0.486492145	0.466622949	0.906343072	1	0.176123195	0.459939496	0.459939496	0.57235862
CO Text 7	0.112042202	0.106970375	0.420400651	0.581810383	0.127614795	0.176123195	1	0.442177077	0.442177077	0.568837999
CO Text 8	0.350650867	0.303765329	0.962890415	0.936788599	0.453211761	0.459939496	0.442177077	1	1	0.97386332
CO Text 9	0.350650867	0.303765329	0.962890415	0.936788599	0.453211761	0.459939496	0.442177077	1	1	0.97386332
CO Text 10	0.479620335	0.415668753	0.99879981	0.926941162	0.599514364	0.57235862	0.568837999	0.97386332	0.97386332	1
RFDRM Text 1	0.132843131	0.124552805	0.443316861	0.588075065	0.155248628	0.197465006	0.964780777	0.464220822	0.464220822	0.573879372
RFDRM Text 2	0.132472668	0.125689045	0.466360168	0.62530663	0.151928241	0.20212856	0.947313329	0.489504126	0.489504126	0.607018316
RFDRM Text 3	0.137941611	0.130238274	0.480639245	0.63799085	0.159395873	0.208879412	0.930930287	0.504320023	0.504320023	0.617436914
RFDRM Text 4	0.06076497	0.063627849	0.238453208	0.397525431	0.059105524	0.105426843	0.685798047	0.250425625	0.250425625	0.417710657
RFDRM Text 5	0.500261296	0.430178187	0.841849139	0.775378691	0.643013934	0.616075073	0.332913498	0.805826939	0.805826939	0.87945617
RFDRM Text 6	0.06076497	0.063627849	0.238453208	0.397525431	0.059105524	0.105426843	0.685798047	0.250425625	0.250425625	0.417710657
RFDRM Text 7	0.024407498	0.029643901	0.097305232	0.22813484	0.017802769	0.049771273	0.356632604	0.101077243	0.101077243	0.27224133
RFDRM Text 8	0.026240296	0.031260454	0.104539206	0.234814761	0.020002907	0.052388914	0.371477835	0.108789636	0.108789636	0.276985913
RFDRM Text 9	0.245676845	0.219801665	0.744565201	0.87496752	0.30587423	0.339781992	0.633332007	0.777108492	0.777108492	0.814840797
RFDRM Text 10	0.402239517	0.348540976	0.964741105	0.877297148	0.51747331	0.515264976	0.395051454	0.927487712	0.927487712	0.972890018

GSR EMOTIONAL DECISION-MAKERS COMPARISON: NON-PROFIT TWO

P	RFDRM Text 1	RFDRM Text 2	RFDRM Text 3	RFDRM Text 4	RFDRM Text 5	RFDRM Text 6	RFDRM Text 7	RFDRM Text 8	RFDRM Text 9	RFDRM Text 10
CO Text 1	0.132843131	0.132472668	0.137941611	0.06076497	0.500261296	0.06076497	0.024407498	0.026240296	0.245676845	0.402239517
CO Text 2	0.124552805	0.125689045	0.130238274	0.063627849	0.430178187	0.063627849	0.029643901	0.031260454	0.219801665	0.348540976
CO Text 3	0.443316861	0.466360168	0.480639245	0.238453208	0.841849139	0.238453208	0.097305232	0.104539206	0.744565201	0.964741105
CO Text 4	0.588075065	0.62530663	0.63799085	0.397525431	0.775378691	0.397525431	0.22813484	0.234814761	0.87496752	0.877297148
CO Text 5	0.155248628	0.151928241	0.159395873	0.059105524	0.643013934	0.059105524	0.017802769	0.020002907	0.30587423	0.51747331
CO Text 6	0.197465006	0.20212856	0.208879412	0.105426843	0.616075073	0.105426843	0.049771273	0.052388914	0.339781992	0.515264976
CO Text 7	0.964780777	0.947313329	0.930930287	0.685798047	0.332913498	0.685798047	0.356632604	0.371477835	0.633332007	0.395051454
CO Text 8	0.464220822	0.489504126	0.504320023	0.250425625	0.805826939	0.250425625	0.101077243	0.108789636	0.777108492	0.927487712
CO Text 9	0.464220822	0.489504126	0.504320023	0.250425625	0.805826939	0.250425625	0.101077243	0.108789636	0.777108492	0.927487712
CO Text 10	0.573879372	0.607018316	0.617436914	0.417710657	0.87945617	0.417710657	0.27224133	0.276985913	0.814840797	0.972890018
RFDRM Text 1	1	0.919148207	0.904853011	0.759004534	0.359702607	0.759004534	0.461505895	0.47238038	0.640537876	0.421254495
RFDRM Text 2	0.919148207	1	0.983542731	0.642236502	0.372928169	0.642236502	0.328483544	0.343440129	0.685509526	0.439830851
RFDRM Text 3	0.904853011	0.983542731	1	0.629569822	0.385056684	0.629569822	0.322146871	0.33676706	0.702007016	0.4538813
RFDRM Text 4	0.759004534	0.642236502	0.629569822	1	0.188509464	1	0.600989587	0.615587614	0.387272526	0.220060289
RFDRM Text 5	0.359702607	0.372928169	0.385056684	0.188509464	1	0.188509464	0.078239932	0.083995487	0.610767605	0.87594687
RFDRM Text 6	0.759004534	0.642236502	0.629569822	1	0.188509464	1	0.600989587	0.615587614	0.387272526	0.220060289
RFDRM Text 7	0.461505895	0.328483544	0.322146871	0.600989587	0.078239932	0.600989587	1	0.998390227	0.172567977	0.086476363
RFDRM Text 8	0.47238038	0.343440129	0.33676706	0.615587614	0.083995487	0.615587614	0.998390227	1	0.18371037	0.093659257
RFDRM Text 9	0.640537876	0.685509526	0.702007016	0.387272526	0.610767605	0.387272526	0.172567977	0.18371037	1	0.711996781
RFDRM Text 10	0.421254495	0.439830851	0.4538813	0.220060289	0.87594687	0.220060289	0.086476363	0.093659257	0.711996781	1

EMG OVERALL COMPARISONS: NON-PROFIT ONE

P	CO Text 1	CO Text 2	CO Text 3	CO Text 4	CO Text 5	CO Text 6	CO Text 7	CO Text 8	CO Text 9	CO Text 10
CO Text 1	1	0.958532726	0.397543104	0.591647667	0.760820609	0.609819128	0.159335004	0.52731174	0.063777606	0.089738351
CO Text 2	0.958532726	1	0.391077589	0.113646759	0.572344697	0.707019545	0.377265761	0.953670235	0.485764029	0.891420821
CO Text 3	0.397543104	0.391077589	1	0.104487485	0.570228054	0.683023051	0.548969777	0.291885311	0.252058138	0.121668047
CO Text 4	0.591647667	0.113646759	0.104487485	1	0.508858254	0.488430977	0.010063445	0.467308378	0.038675637	0.235963174
CO Text 5	0.760820609	0.572344697	0.570228054	0.508858254	1	0.781184312	0.10741796	0.635095742	0.797539679	0.130136217
CO Text 6	0.609819128	0.707019545	0.683023051	0.488430977	0.781184312	1	0.288369575	0.78387108	0.089559833	0.651446559
CO Text 7	0.159335004	0.377265761	0.548969777	0.010063445	0.10741796	0.288369575	1	0.219162964	0.740928128	0.287645223
CO Text 8	0.52731174	0.953670235	0.291885311	0.467308378	0.635095742	0.78387108	0.219162964	1	0.034829501	0.061700687
CO Text 9	0.063777606	0.485764029	0.252058138	0.038675637	0.797539679	0.089559833	0.740928128	0.034829501	1	0.86532304
CO Text 10	0.089738351	0.891420821	0.121668047	0.235963174	0.130136217	0.651446559	0.287645223	0.061700687	0.86532304	1
RFDRM Text 1	0.0752562	0.157389615	0.436695517	0.007579263	0.100638664	0.243351078	0.80928933	0.043326124	0.718281232	0.478536909
RFDRM Text 2	0.880985714	0.177162623	0.065111261	0.944308089	0.947921773	0.475889544	0.015302434	0.853431925	0.028517325	0.300626594
RFDRM Text 3	0.901415265	0.10172428	0.029187731	0.976090006	0.969366379	0.436486584	0.007465326	0.811075045	0.010771778	0.271650485
RFDRM Text 4	0.666259182	0.404818068	0.1842591	0.612529948	0.732920654	0.723981713	0.051532504	0.837718066	0.095169046	0.494196714
RFDRM Text 5	0.089385922	0.249900317	0.516032474	0.024282373	0.116341769	0.275753519	0.847224695	0.069501734	0.753074018	0.498500526
RFDRM Text 6	0.475512702	0.784973316	0.476852517	0.397998229	0.536542514	0.998613766	0.169659666	0.575109432	0.309133653	0.736678934
RFDRM Text 7	0.162490899	0.47194917	0.77683356	0.081807751	0.199685832	0.434579296	0.657311028	0.159383424	0.990201897	0.680309089
RFDRM Text 8	0.913015328	0.245646015	0.113003865	0.983829359	0.973715504	0.501309137	0.031455865	0.843302386	0.059160923	0.332192488
RFDRM Text 9	0.915040634	0.057879982	0.016648381	0.736066906	0.854652637	0.307012873	0.004153142	0.589621385	0.006132979	0.18663033
RFDRM Text 10	0.384501955	0.951314524	0.608387486	0.286538175	0.442125253	0.865186489	0.229156786	0.449266676	0.409656788	0.856438907

EMG OVERALL COMPARISONS: NON-PROFIT TWO

P	RFDRM Text 1	RFDRM Text 2	RFDRM Text 3	RFDRM Text 4	RFDRM Text 5	RFDRM Text 6	RFDRM Text 7	RFDRM Text 8	RFDRM Text 9	RFDRM Text 10
CO Text 1	0.0752562	0.880985714	0.901415265	0.666259182	0.089385922	0.475512702	0.162490899	0.913015328	0.915040634	0.384501955
CO Text 2	0.157389615	0.177162623	0.10172428	0.404818068	0.249900317	0.784973316	0.47194917	0.245646015	0.057879982	0.951314524
CO Text 3	0.436695517	0.065111261	0.029187731	0.1842591	0.516032474	0.476852517	0.77683356	0.113003865	0.016648381	0.608387486
CO Text 4	0.007579263	0.944308089	0.976090006	0.612529948	0.024282373	0.397998229	0.081807751	0.983829359	0.736066906	0.286538175
CO Text 5	0.100638664	0.947921773	0.969366379	0.732920654	0.116341769	0.536542514	0.199685832	0.973715504	0.854652637	0.442125253
CO Text 6	0.243351078	0.475889544	0.436486584	0.723981713	0.275753519	0.998613766	0.434579296	0.501309137	0.307012873	0.865186489
CO Text 7	0.80928933	0.015302434	0.007465326	0.051532504	0.847224695	0.169659666	0.657311028	0.031455865	0.004153142	0.229156786
CO Text 8	0.043326124	0.853431925	0.811075045	0.837718066	0.069501734	0.575109432	0.159383424	0.843302386	0.589621385	0.449266676
CO Text 9	0.718281232	0.028517325	0.010771778	0.095169046	0.753074018	0.309133653	0.990201897	0.059160923	0.006132979	0.409656788
CO Text 10	0.478536909	0.300626594	0.271650485	0.494196714	0.498500526	0.736678934	0.680309089	0.332192488	0.18663033	0.856438907
RFDRM Text 1	1	0.099043814	0.065173737	0.059683659	0.987584073	0.118263445	0.738647667	0.16360656	0.002954912	0.456708956
RFDRM Text 2	0.099043814	1	0.926646621	0.453238676	0.042188653	0.660596648	0.035564837	0.696908254	0.082673573	0.684417196
RFDRM Text 3	0.065173737	0.926646621	1	0.399890058	0.113742586	0.580560328	0.308163859	0.690068591	0.801934876	0.290866775
RFDRM Text 4	0.059683659	0.453238676	0.399890058	1	0.09371474	0.950024329	0.54981384	0.405934664	0.330064271	0.669117993
RFDRM Text 5	0.987584073	0.042188653	0.113742586	0.09371474	1	0.116924781	0.744796415	0.408619033	0.018472855	0.438464685
RFDRM Text 6	0.118263445	0.660596648	0.580560328	0.950024329	0.116924781	1	0.377269358	0.661241565	0.518751586	0.894437748
RFDRM Text 7	0.738647667	0.035564837	0.308163859	0.54981384	0.744796415	0.377269358	1	0.066332846	0.044813663	0.435724791
RFDRM Text 8	0.16360656	0.696908254	0.690068591	0.405934664	0.408619033	0.661241565	0.066332846	1	0.245377591	0.323670298
RFDRM Text 9	0.002954912	0.082673573	0.801934876	0.330064271	0.018472855	0.518751586	0.044813663	0.245377591	1	0.095602905
RFDRM Text 10	0.456708956	0.684417196	0.290866775	0.669117993	0.438464685	0.894437748	0.435724791	0.323670298	0.095602905	1

EMG FEMALE COMPARISON: NON-PROFIT ONE

P	CO Text 1	CO Text 2	CO Text 3	CO Text 4	CO Text 5	CO Text 6	CO Text 7	CO Text 8	CO Text 9	CO Text 10
CO Text 1	1	0.235460672	0.079703674	0.398921606	0.802772721	0.615103543	0.040353295	0.267418382	0.012845082	0.059906697
CO Text 2	0.235460672	1	0.73612122	0.478639601	0.442318586	0.169441443	0.165082796	0.286846179	0.30438145	0.364082302
CO Text 3	0.079703674	0.73612122	1	0.278943783	0.267993501	0.10523096	0.32117799	0.046409158	0.440287502	0.934180238
CO Text 4	0.398921606	0.478639601	0.278943783	1	0.218583877	0.248562223	0.026615392	0.355489964	0.117377194	0.509485488
CO Text 5	0.802772721	0.442318586	0.267993501	0.218583877	1	0.506130868	0.049952931	0.734154637	0.049586273	0.0854048
CO Text 6	0.615103543	0.169441443	0.10523096	0.248562223	0.506130868	1	0.017945607	0.693736996	0.024882409	0.329499773
CO Text 7	0.040353295	0.165082796	0.32117799	0.026615392	0.049952931	0.017945607	1	0.037130676	0.589435847	0.080410797
CO Text 8	0.267418382	0.286846179	0.046409158	0.355489964	0.734154637	0.693736996	0.037130676	1	0.024765439	0.175504877
CO Text 9	0.012845082	0.30438145	0.440287502	0.117377194	0.049586273	0.024882409	0.589435847	0.024765439	1	0.149907601
CO Text 10	0.059906697	0.364082302	0.934180238	0.509485488	0.0854048	0.329499773	0.080410797	0.175504877	0.149907601	1
RFDRM Text 1	0.009433746	0.186146074	0.265012266	0.01683567	0.047655113	0.014334576	0.518670428	0.003338353	0.703885013	0.068011104
RFDRM Text 2	0.204094156	0.170938146	0.083115574	0.687277301	0.485337912	0.672739539	0.012337318	0.545659388	0.025698503	0.719527878
RFDRM Text 3	0.312985868	0.09475665	0.041697119	0.438780589	0.634906782	0.912992693	0.008438128	0.811534228	0.013212776	0.897387604
RFDRM Text 4	0.221428262	0.304204305	0.190270184	0.789897612	0.494628204	0.67938671	0.030167412	0.577503827	0.078208586	0.714456328
RFDRM Text 5	0.022496148	0.423230332	0.51103219	0.117740623	0.085111264	0.059702314	0.585122576	0.033119317	0.840052092	0.123021026
RFDRM Text 6	0.141057837	0.796266248	0.660262628	0.727190523	0.33300561	0.411640455	0.180011205	0.339798002	0.413477143	0.473578439
RFDRM Text 7	0.112918623	0.806829892	0.658327425	0.669916071	0.292492747	0.35530856	0.158019653	0.280402362	0.392047091	0.427940499
RFDRM Text 8	0.482620903	0.137485634	0.079522314	0.366549492	0.828463606	0.827540019	0.013518766	0.880324867	0.032700936	0.897174214
RFDRM Text 9	0.233065821	0.195311831	0.103235758	0.676843802	0.519333782	0.718196155	0.016580041	0.602372599	0.035602562	0.752093727
RFDRM Text 10	0.143238372	0.810205162	0.677201966	0.724125843	0.334588126	0.414126307	0.191562684	0.344158195	0.431652123	0.473909157

EMG FEMALE COMPARISON: NON-PROFIT TWO

P	RFDRM Text 1	RFDRM Text 2	RFDRM Text 3	RFDRM Text 4	RFDRM Text 5	RFDRM Text 6	RFDRM Text 7	RFDRM Text 8	RFDRM Text 9	RFDRM Text 10
CO Text 1	0.009433746	0.204094156	0.312985868	0.221428262	0.022496148	0.141057837	0.112918623	0.482620903	0.233065821	0.143238372
CO Text 2	0.186146074	0.170938146	0.09475665	0.304204305	0.423230332	0.796266248	0.806829892	0.137485634	0.195311831	0.810205162
CO Text 3	0.265012266	0.083115574	0.041697119	0.190270184	0.51103219	0.660262628	0.658327425	0.079522314	0.103235758	0.677201966
CO Text 4	0.01683567	0.687277301	0.438780589	0.789897612	0.117740623	0.727190523	0.669916071	0.366549492	0.676843802	0.724125843
CO Text 5	0.047655113	0.485337912	0.634906782	0.494628204	0.085111264	0.33300561	0.292492747	0.828463606	0.519333782	0.334588126
CO Text 6	0.014334576	0.672739539	0.912992693	0.67938671	0.059702314	0.411640455	0.35530856	0.827540019	0.718196155	0.414126307
CO Text 7	0.518670428	0.012337318	0.008438128	0.030167412	0.585122576	0.180011205	0.158019653	0.013518766	0.016580041	0.191562684
CO Text 8	0.003338353	0.545659388	0.811534228	0.577503827	0.033119317	0.339798002	0.280402362	0.880324867	0.602372599	0.344158195
CO Text 9	0.703885013	0.025698503	0.013212776	0.078208586	0.840052092	0.413477143	0.392047091	0.032700936	0.035602562	0.431652123
CO Text 10	0.068011104	0.719527878	0.897387604	0.714456328	0.123021026	0.473578439	0.427940499	0.897174214	0.752093727	0.473909157
RFDRM Text 1	1	0.058232805	0.021554611	0.067629466	0.963449174	0.152585131	0.742800679	0.198614114	0.016268491	0.619245174
RFDRM Text 2	0.058232805	1	0.332191667	0.667923617	0.169962315	0.69702558	0.141262027	0.877402807	0.300110932	0.687765256
RFDRM Text 3	0.021554611	0.332191667	1	0.365684548	0.346294999	0.555176333	0.706189789	0.895418282	0.97923716	0.47906285
RFDRM Text 4	0.067629466	0.667923617	0.365684548	1	0.086126934	0.754303084	0.638630122	0.334863767	0.992250077	0.744476352
RFDRM Text 5	0.963449174	0.169962315	0.346294999	0.086126934	1	0.207508328	0.925777673	0.461897836	0.160261835	0.405936041
RFDRM Text 6	0.152585131	0.69702558	0.555176333	0.754303084	0.207508328	1	0.891299669	0.506102269	0.905621114	0.985240525
RFDRM Text 7	0.742800679	0.141262027	0.706189789	0.638630122	0.925777673	0.891299669	1	0.100032498	0.256140575	0.846127223
RFDRM Text 8	0.198614114	0.877402807	0.895418282	0.334863767	0.461897836	0.506102269	0.100032498	1	0.674908803	0.296052135
RFDRM Text 9	0.016268491	0.300110932	0.97923716	0.992250077	0.160261835	0.905621114	0.256140575	0.674908803	1	0.401874361
RFDRM Text 10	0.619245174	0.687765256	0.47906285	0.744476352	0.405936041	0.985240525	0.846127223	0.296052135	0.401874361	1

EMG MALE COMPARISON: NON-PROFIT ONE

P	CO Text 1	CO Text 2	CO Text 3	CO Text 4	CO Text 5	CO Text 6	CO Text 7	CO Text 8	CO Text 9	CO Text 10
CO Text 1	1	0.274220722	0.135936008	0.109725789	0.501192601	0.86741784	0.172449747	0.263281344	0.497339282	0.951727625
CO Text 2	0.274220722	1	0.432156492	0.121290869	0.886923332	0.418957911	0.67848656	0.304706847	0.925071361	0.126148545
CO Text 3	0.135936008	0.432156492	1	0.240408097	0.916965293	0.429378572	0.507161846	0.155384515	0.405386388	0.050399806
CO Text 4	0.109725789	0.121290869	0.240408097	1	0.206659321	0.05430068	0.211553563	0.114643738	0.200114957	0.032144575
CO Text 5	0.501192601	0.886923332	0.916965293	0.206659321	1	0.46644946	0.851632468	0.751090201	0.225762822	0.356878968
CO Text 6	0.86741784	0.418957911	0.429378572	0.05430068	0.46644946	1	0.418442533	0.541373774	0.910194114	0.934955194
CO Text 7	0.172449747	0.67848656	0.507161846	0.211553563	0.851632468	0.418442533	1	0.129594166	0.814439318	0.130167284
CO Text 8	0.263281344	0.304706847	0.155384515	0.114643738	0.751090201	0.541373774	0.129594166	1	0.490469604	0.200669246
CO Text 9	0.497339282	0.925071361	0.405386388	0.200114957	0.225762822	0.910194114	0.814439318	0.490469604	1	0.217702597
CO Text 10	0.951727625	0.126148545	0.050399806	0.032144575	0.356878968	0.934955194	0.130167284	0.200669246	0.217702597	1
RFDRM Text 1	0.340329172	0.522771335	0.91559217	0.13479734	0.930966373	0.614202668	0.630049933	0.841450879	0.845650115	0.229189567
RFDRM Text 2	0.059298271	0.551044957	0.340245315	0.677123674	0.431961548	0.196169557	0.484538062	0.471162245	0.371638361	0.036651226
RFDRM Text 3	0.030229414	0.604913641	0.312094393	0.414275082	0.477229098	0.201668023	0.501247036	0.528196059	0.347152963	0.022345298
RFDRM Text 4	0.125841545	0.951558961	0.65411169	0.268534109	0.746543996	0.379832676	0.925855706	0.817682937	0.712808678	0.087802922
RFDRM Text 5	0.406424335	0.414695759	0.79295172	0.095235106	0.83075321	0.676297948	0.513952782	0.735239443	0.722399208	0.266429286
RFDRM Text 6	0.088122216	0.926555399	0.554841736	0.307984496	0.655957072	0.30213912	0.809400679	0.724675763	0.609470133	0.056497201
RFDRM Text 7	0.961336573	0.151112646	0.362159891	0.038532727	0.440285609	0.877850652	0.200756789	0.36287979	0.317820016	0.724643871
RFDRM Text 8	0.171653665	0.848607522	0.760429445	0.242494685	0.817270281	0.420847859	0.965086482	0.894640586	0.822817791	0.112645101
RFDRM Text 9	0.00783685	0.175634223	0.094047026	0.999442892	0.207909817	0.082595369	0.145916344	0.223423359	0.103153117	0.005948006
RFDRM Text 10	0.117579077	0.716600449	0.776741386	0.131045682	0.84521337	0.398528068	0.866977932	0.937192889	0.855859077	0.077078523

EMG MALE COMPARISON: NON-PROFIT TWO

P	RFDRM Text 1	RFDRM Text 2	RFDRM Text 3	RFDRM Text 4	RFDRM Text 5	RFDRM Text 6	RFDRM Text 7	RFDRM Text 8	RFDRM Text 9	RFDRM Text 10
CO Text 1	0.340329172	0.059298271	0.030229414	0.125841545	0.406424335	0.088122216	0.961336573	0.171653665	0.00783685	0.117579077
CO Text 2	0.522771335	0.551044957	0.604913641	0.951558961	0.414695759	0.926555399	0.151112646	0.848607522	0.175634223	0.716600449
CO Text 3	0.91559217	0.340245315	0.312094393	0.65411169	0.79295172	0.554841736	0.362159891	0.760429445	0.094047026	0.776741386
CO Text 4	0.13479734	0.677123674	0.414275082	0.268534109	0.095235106	0.307984496	0.038532727	0.242494685	0.999442892	0.131045682
CO Text 5	0.930966373	0.431961548	0.477229098	0.746543996	0.83075321	0.655957072	0.440285609	0.817270281	0.207909817	0.84521337
CO Text 6	0.614202668	0.196169557	0.201668023	0.379832676	0.676297948	0.30213912	0.877850652	0.420847859	0.082595369	0.398528068
CO Text 7	0.630049933	0.484538062	0.501247036	0.925855706	0.513952782	0.809400679	0.200756789	0.965086482	0.145916344	0.866977932
CO Text 8	0.841450879	0.471162245	0.528196059	0.817682937	0.735239443	0.724675763	0.36287979	0.894640586	0.223423359	0.937192889
CO Text 9	0.845650115	0.371638361	0.347152963	0.712808678	0.722399208	0.609470133	0.317820016	0.822817791	0.103153117	0.855859077
CO Text 10	0.229189567	0.036651226	0.022345298	0.087802922	0.266429286	0.056497201	0.724643871	0.112645101	0.005948006	0.077078523
RFDRM Text 1	1	0.603276402	0.722559881	0.561335686	0.938833234	0.542029567	0.938681157	0.591918727	0.081696499	0.492719425
RFDRM Text 2	0.603276402	1	0.676616844	0.507721738	0.147002703	0.857212321	0.149811127	0.452376146	0.177552996	0.922763115
RFDRM Text 3	0.722559881	0.676616844	1	0.9478556	0.158005367	0.99561861	0.203632887	0.602527393	0.712932012	0.337388052
RFDRM Text 4	0.561335686	0.507721738	0.9478556	1	0.496692479	0.514532625	0.679395773	0.9434659	0.087120257	0.779691393
RFDRM Text 5	0.938833234	0.147002703	0.158005367	0.496692479	1	0.371148544	0.617774821	0.706811038	0.049245356	0.868951699
RFDRM Text 6	0.542029567	0.857212321	0.99561861	0.514532625	0.371148544	1	0.105262222	0.531782352	0.306467158	0.685353202
RFDRM Text 7	0.938681157	0.149811127	0.203632887	0.679395773	0.617774821	0.105262222	1	0.370115866	0.039762122	0.30778978
RFDRM Text 8	0.591918727	0.452376146	0.602527393	0.9434659	0.706811038	0.531782352	0.370115866	1	0.229899474	0.992666438
RFDRM Text 9	0.081696499	0.177552996	0.712932012	0.087120257	0.049245356	0.306467158	0.039762122	0.229899474	1	0.072846216
RFDRM Text 10	0.492719425	0.922763115	0.337388052	0.779691393	0.868951699	0.685353202	0.30778978	0.992666438	0.072846216	1

EMG RATIONAL DECISION-MAKERS COMPARISON: NON-PROFIT ONE

P	CO Text 1	CO Text 2	CO Text 3	CO Text 4	CO Text 5	CO Text 6	CO Text 7	CO Text 8	CO Text 9	CO Text 10
CO Text 1	1	0.685194083	0.453025154	0.068844852	0.36321767	0.25052399	0.511891829	0.317215279	0.573723294	0.370716325
CO Text 2	0.685194083	1	0.183408953	0.084023326	0.517318517	0.356728572	0.202621706	0.440652612	0.25635979	0.177306015
CO Text 3	0.453025154	0.183408953	1	0.007063095	0.070869362	0.063689407	0.883104317	0.105082752	0.828789644	0.776277365
CO Text 4	0.068844852	0.084023326	0.007063095	1	0.283399493	0.64742763	0.006579589	0.65727589	0.010852443	0.012679115
CO Text 5	0.36321767	0.517318517	0.070869362	0.283399493	1	0.676915421	0.073934065	0.740784879	0.101700442	0.083416744
CO Text 6	0.25052399	0.356728572	0.063689407	0.64742763	0.676915421	1	0.070183875	0.973133774	0.090534802	0.064277835
CO Text 7	0.511891829	0.202621706	0.883104317	0.006579589	0.073934065	0.070183875	1	0.116877445	0.935907992	0.67868515
CO Text 8	0.317215279	0.440652612	0.105082752	0.65727589	0.740784879	0.973133774	0.116877445	1	0.142302349	0.097505168
CO Text 9	0.573723294	0.25635979	0.828789644	0.010852443	0.101700442	0.090534802	0.935907992	0.142302349	1	0.645362066
CO Text 10	0.370716325	0.177306015	0.776277365	0.012679115	0.083416744	0.064277835	0.67868515	0.097505168	0.645362066	1
RFDRM Text 1	0.458603098	0.231732812	0.917541189	0.016947118	0.109600849	0.083552216	0.818269636	0.12315963	0.776424644	0.872583322
RFDRM Text 2	0.146373181	0.202224839	0.021843193	0.710104267	0.509958281	0.891382044	0.02237657	0.873882465	0.032980971	0.029199591
RFDRM Text 3	0.248435158	0.349576872	0.044582963	0.469926968	0.752269449	0.877749627	0.046491996	0.919749724	0.065229657	0.054285906
RFDRM Text 4	0.976067626	0.66532522	0.483483156	0.070992484	0.356172734	0.254644902	0.54294045	0.322549934	0.604632243	0.399987462
RFDRM Text 5	0.712591113	0.432971305	0.750430106	0.03746645	0.218019205	0.147336227	0.83642894	0.197462886	0.892714849	0.595159017
RFDRM Text 6	0.188264151	0.270854542	0.021555163	0.416394959	0.705309835	0.871967872	0.021578309	0.91860388	0.033644194	0.030757625
RFDRM Text 7	0.741260313	0.530465354	0.839549268	0.097545716	0.330868397	0.219907695	0.909953518	0.261484022	0.951480277	0.696164395
RFDRM Text 8	0.265560541	0.390744509	0.046956903	0.402469249	0.818706928	0.811218806	0.050583911	0.860533532	0.070421518	0.053063441
RFDRM Text 9	0.043264326	0.047779932	0.002577153	0.99987004	0.221410708	0.615848613	0.002158621	0.629802839	0.004103381	0.006244177
RFDRM Text 10	0.808207917	0.577076264	0.743649743	0.097799254	0.352368037	0.234330199	0.813944696	0.280394759	0.860345358	0.609190597

EMG RATIONAL DECISION-MAKERS COMPARISON: NON-PROFIT TWO

P	RFDRM Text 1	RFDRM Text 2	RFDRM Text 3	RFDRM Text 4	RFDRM Text 5	RFDRM Text 6	RFDRM Text 7	RFDRM Text 8	RFDRM Text 9	RFDRM Text 10
CO Text 1	0.458603098	0.146373181	0.248435158	0.976067626	0.712591113	0.188264151	0.741260313	0.265560541	0.043264326	0.808207917
CO Text 2	0.231732812	0.202224839	0.349576872	0.66532522	0.432971305	0.270854542	0.530465354	0.390744509	0.047779932	0.577076264
CO Text 3	0.917541189	0.021843193	0.044582963	0.483483156	0.750430106	0.021555163	0.839549268	0.046956903	0.002577153	0.743649743
CO Text 4	0.016947118	0.710104267	0.469926968	0.070992484	0.03746645	0.416394959	0.097545716	0.402469249	0.99987004	0.097799254
CO Text 5	0.109600849	0.509958281	0.752269449	0.356172734	0.218019205	0.705309835	0.330868397	0.818706928	0.221410708	0.352368037
CO Text 6	0.083552216	0.891382044	0.877749627	0.254644902	0.147336227	0.871967872	0.219907695	0.811218806	0.615848613	0.234330199
CO Text 7	0.818269636	0.02237657	0.046491996	0.54294045	0.83642894	0.021578309	0.909953518	0.050583911	0.002158621	0.813944696
CO Text 8	0.12315963	0.873882465	0.919749724	0.322549934	0.197462886	0.91860388	0.261484022	0.860533532	0.629802839	0.280394759
CO Text 9	0.776424644	0.032980971	0.065229657	0.604632243	0.892714849	0.033644194	0.951480277	0.070421518	0.004103381	0.860345358
CO Text 10	0.872583322	0.029199591	0.054285906	0.399987462	0.595159017	0.030757625	0.696164395	0.053063441	0.006244177	0.609190597
RFDRM Text 1	1	0.039085416	0.071814287	0.48885397	0.709560081	0.042627939	0.79500151	0.071843148	0.008598975	0.707357459
RFDRM Text 2	0.039085416	1	0.73578722	0.148509233	0.080910748	0.710738428	0.158393969	0.660534845	0.677272129	0.164694037
RFDRM Text 3	0.071814287	0.73578722	1	0.247276406	0.144074679	0.989888252	0.241570009	0.927383184	0.41576234	0.254957762
RFDRM Text 4	0.48885397	0.148509233	0.247276406	1	0.742379033	0.185945198	0.767486549	0.263994069	0.044187298	0.833348419
RFDRM Text 5	0.709560081	0.080910748	0.144074679	0.742379033	1	0.100421825	0.967938919	0.148473391	0.022435118	0.949143592
RFDRM Text 6	0.042627939	0.710738428	0.989888252	0.185945198	0.100421825	1	0.195654967	0.907158074	0.355025238	0.20655948
RFDRM Text 7	0.79500151	0.158393969	0.241570009	0.767486549	0.967938919	0.195654967	1	0.241252983	0.074407808	0.928116966
RFDRM Text 8	0.071843148	0.660534845	0.927383184	0.263994069	0.148473391	0.907158074	0.241252983	1	0.348498634	0.25800092
RFDRM Text 9	0.008598975	0.677272129	0.41576234	0.044187298	0.022435118	0.355025238	0.074407808	0.348498634	1	0.07352762
RFDRM Text 10	0.707357459	0.164694037	0.254957762	0.833348419	0.949143592	0.20655948	0.928116966	0.25800092	0.07352762	1

EMG EMOTIONAL DECISION-MAKERS COMPARISON: NON-PROFIT ONE

P	CO Text 1	CO Text 2	CO Text 3	CO Text 4	CO Text 5	CO Text 6	CO Text 7	CO Text 8	CO Text 9	CO Text 10
CO Text 1	1	0.183833947	0.296939781	0.247159871	0.652652041	0.152351033	0.08108696	0.277204463	0.128466662	0.501330867
CO Text 2	0.183833947	1	0.436681992	0.647119793	0.496629202	0.66500981	0.366690061	0.507745399	0.685743761	0.520500711
CO Text 3	0.296939781	0.436681992	1	0.833860547	0.676786967	0.43116673	0.179224477	0.977567664	0.251605674	0.751291942
CO Text 4	0.247159871	0.647119793	0.833860547	1	0.61056841	0.492222029	0.233048851	0.837036329	0.412698863	0.674087988
CO Text 5	0.652652041	0.496629202	0.676786967	0.61056841	1	0.382887551	0.256558549	0.666526604	0.39357578	0.880621157
CO Text 6	0.152351033	0.66500981	0.43116673	0.492222029	0.382887551	1	0.785001098	0.413046051	0.830428098	0.392339494
CO Text 7	0.08108696	0.366690061	0.179224477	0.233048851	0.256558549	0.785001098	1	0.178859161	0.524239543	0.238455827
CO Text 8	0.277204463	0.507745399	0.977567664	0.837036329	0.666526604	0.413046051	0.178859161	1	0.311534863	0.751842318
CO Text 9	0.128466662	0.685743761	0.251605674	0.412698863	0.39357578	0.830428098	0.524239543	0.311534863	1	0.394213485
CO Text 10	0.501330867	0.520500711	0.751291942	0.674087988	0.880621157	0.392339494	0.238455827	0.751842318	0.394213485	1
RFDRM Text 1	0.100552064	0.470151782	0.082512566	0.243457774	0.341873505	0.909637764	0.583970548	0.171992541	0.828694569	0.327042254
RFDRM Text 2	0.3175111	0.514012335	0.888345639	0.776004073	0.714786801	0.395842263	0.187301211	0.909657267	0.33900026	0.81546825
RFDRM Text 3	0.421447272	0.163015159	0.428883483	0.390369522	0.865247272	0.241392116	0.075244297	0.530104036	0.086988391	0.993859874
RFDRM Text 4	0.609607707	0.125227007	0.28614308	0.251120901	0.941346808	0.168775794	0.055068032	0.328184413	0.070902713	0.766022563
RFDRM Text 5	0.088888393	0.408673289	0.20393429	0.263236241	0.275035333	0.829954889	0.946768522	0.203772875	0.57671374	0.259623608
RFDRM Text 6	0.184075467	0.75747443	0.522869809	0.583487231	0.430426471	0.938107588	0.729907369	0.501447091	0.917807142	0.450720765
RFDRM Text 7	0.148349188	0.734483815	0.404147613	0.506899923	0.408064211	0.871988059	0.608983434	0.409865733	0.964637421	0.417629961
RFDRM Text 8	0.56652367	0.420931614	0.645601482	0.573264282	0.942056747	0.348745786	0.195638191	0.651107604	0.306761336	0.933011543
RFDRM Text 9	0.380461172	0.453242171	0.800477591	0.701041453	0.773417759	0.385470307	0.182780057	0.828668292	0.298547565	0.877174347
RFDRM Text 10	0.407901518	0.355952243	0.675398311	0.586649372	0.822503038	0.322158094	0.138507816	0.710360719	0.22367557	0.944391583

EMG EMOTIONAL DECISION-MAKERS COMPARISON: NON-PROFIT TWO

P	RFDRM Text 1	RFDRM Text 2	RFDRM Text 3	RFDRM Text 4	RFDRM Text 5	RFDRM Text 6	RFDRM Text 7	RFDRM Text 8	RFDRM Text 9	RFDRM Text 10
CO Text 1	0.100552064	0.3175111	0.421447272	0.609607707	0.088888393	0.184075467	0.148349188	0.56652367	0.380461172	0.407901518
CO Text 2	0.470151782	0.514012335	0.163015159	0.125227007	0.408673289	0.75747443	0.734483815	0.420931614	0.453242171	0.355952243
CO Text 3	0.082512566	0.888345639	0.428883483	0.28614308	0.20393429	0.522869809	0.404147613	0.645601482	0.800477591	0.675398311
CO Text 4	0.243457774	0.776004073	0.390369522	0.251120901	0.263236241	0.583487231	0.506899923	0.573264282	0.701041453	0.586649372
CO Text 5	0.341873505	0.714786801	0.865247272	0.941346808	0.275035333	0.430426471	0.408064211	0.942056747	0.773417759	0.822503038
CO Text 6	0.909637764	0.395842263	0.241392116	0.168775794	0.829954889	0.938107588	0.871988059	0.348745786	0.385470307	0.322158094
CO Text 7	0.583970548	0.187301211	0.075244297	0.055068032	0.946768522	0.729907369	0.608983434	0.195638191	0.182780057	0.138507816
CO Text 8	0.171992541	0.909657267	0.530104036	0.328184413	0.203772875	0.501447091	0.409865733	0.651107604	0.828668292	0.710360719
CO Text 9	0.828694569	0.33900026	0.086988391	0.070902713	0.57671374	0.917807142	0.964637421	0.306761336	0.298547565	0.22367557
CO Text 10	0.327042254	0.81546825	0.993859874	0.766022563	0.259623608	0.450720765	0.417629961	0.933011543	0.877174347	0.944391583
RFDRM Text 1	1	0.228676835	0.024287859	0.031679233	0.643557799	0.996927799	0.918118106	0.237669807	0.190847393	0.13192685
RFDRM Text 2	0.228676835	1	0.692159636	0.447203329	0.211147497	0.475921041	0.404290512	0.725712235	0.925888624	0.820942206
RFDRM Text 3	0.024287859	0.692159636	1	0.613915095	0.087416064	0.316514159	0.189832957	0.913035286	0.780013853	0.894123819
RFDRM Text 4	0.031679233	0.447203329	0.613915095	1	0.063282464	0.224260565	0.1305928	0.837927993	0.521529774	0.594720012
RFDRM Text 5	0.643557799	0.211147497	0.087416064	0.063282464	1	0.771759036	0.657647741	0.213839937	0.204677464	0.156650797
RFDRM Text 6	0.996927799	0.475921041	0.316514159	0.224260565	0.771759036	1	0.948500092	0.408079011	0.462848303	0.396668204
RFDRM Text 7	0.918118106	0.404290512	0.189832957	0.1305928	0.657647741	0.948500092	1	0.349322272	0.377120467	0.303285588
RFDRM Text 8	0.237669807	0.725712235	0.913035286	0.837927993	0.213839937	0.408079011	0.349322272	1	0.791456685	0.857731269
RFDRM Text 9	0.190847393	0.925888624	0.780013853	0.521529774	0.204677464	0.462848303	0.377120467	0.791456685	1	0.899963286
RFDRM Text 10	0.13192685	0.820942206	0.894123819	0.594720012	0.156650797	0.396668204	0.303285588	0.857731269	0.899963286	1

ADDENDUM J:

FOCUS GROUP DISCUSSION GUIDE AND RESULTS

The influence of feedback messages on neurophysiological responses in a non-profit context

FOCUS GROUP

DISCUSSION MATERIAL

Caitlin Grobbelaar | 20 May 2015

DISCUSSION GUIDE

Welcome and thank you for coming:

BACKGROUND (2 MINUTES)

A bit of background about my study before we start:

- My **research focus** is on **neuromarketing a**nd the influence of **feedback** in a **non-profit context.**

- A neuromarketing approach focuses on identifying **individuals' subconscious** and **physiological responses** to pre-determined stimuli.

- Since neuromarketing is a relatively **recent field of study**, involves new **theoretical foundations** and new technologies, it is not always easy to **interpret** and understand individuals' **cognitive processes** based on their neurophysiological and emotional responses.

- Therefore, because the study makes use of a neuromarketing methodology, your **input is valued** for the purpose of establishing **interpretation** and **understanding** concerning the significant results from the research.

EXPLANATION OF PACKS (2 MINUTES)

Each pack includes:

1. A definitions page of each neurophysiological measure used
2. Ten sets of stimuli for discussion

NEUROPHYSIOLOGICAL MEASURES – DEFINITIONS (5 MINUTES)

Firstly - the study makes use of three neurophysiological measures that I can briefly explain:

- **Galvanic skin response (GSR)** – uses the distal phalanx finger to measure skin moisture in response to a stimuli which indicates the level of arousal
- **Electromyography (EMG)** – measures the facial muscle activity in terms of the muscles used to frown and the muscles used to smile

SETS (3 MINUTES)

Each set includes two stimuli in terms of feedback text messages. The stimuli consisted of two groups of ten identical messages except for the non-profit organisation. Group one refers to *Cheetah Outreach* and group two refers *to Reach for a Dream*.
The sets are ordered in a structured approach relative to the neurophysiological measure.

- Results were analysed from an overall level, in terms of gender and in terms of rational thinking versus emotional thinking.
- Respondents were required to self-classify and indicate whether they made decisions based on rational thinking or emotional thinking.

I would like for us to discuss each set. At the top of each set will be an indicator of whether the neurophysiological mean score was positive or negative which indicates whether the respondents' reaction was positive or negative towards the stimuli. The purpose of our discussion is to provide a reason and interpretation with regards to the results from each set.

THANK YOU (2 MINUTES)

NEUROPHYSIOLOGICAL MEASURES

Neuromarketing, a subcategory of neuroscience, is the methodological approach used to identify an individual's neurophysiological response to a pre-determined stimulus. The current research makes use of two neurophysiological techniques that require understanding and are defined below.

GALVANIC SKIN RESPONSE (GSR)

The GSR method is primarily used to detect changes in skin moisture when the autonomic nervous system is activated after exposure to a stimulus, which is an indicator of arousal

(Ravaja, 2004)

ELECTROMYOGRAPHY (EMG)

The EMG method is used to evaluate facial muscle activity, which is directly linked to a positive or negative emotional state in response to a stimulus. The three muscles that are measured are the *corrugator supercilii muscle* (found at the top of the eyebrow), *orbicularis oculi muscle* (under the eye) and the *zygomaticus major* (positioned on the cheek, indicating a smile).

(Ohme, Matukin & Szczurko, 2010)

FOCUS GROUP SUMMARISED DISCUSSION

Set NP measure	NPO group respondent group	Text message	NP score	Discussion points	NPO group respondent group	Text message	NP score	Discussion points	Preferred text message
Set one GSR Arousal	Text 1 Group 1: Cheetah Outreach Emotional decision-makers	**Thank you for your donation!**	Higher positive GSR score	Simple Shorter	Text 7 Group 1: Cheetah Outreach Emotional decision-makers	**Dear supporter, thank you for your donation to Cheetah Outreach!**	Lower positive GSR score	The word supporter gives off the impression that the organisation is assuming commitment from the donor. The reader feels that the NPO is making the assumption that the donor is going to donate again in future.	Text 1
Set two GSR Arousal	Text 1 Group 2: Reach for a Dream Emotional decision-makers	**Thank you for your donation!**	Higher positive GSR score	Simple Shorter	Text 8 Group 2: Reach for a Dream Emotional decision-makers	**Dear kind supporter, thank you for your donation to Reach for a Dream!**	Lower positive GSR score	The word 'kind' is desperate and insincere. Readers feel that it is patronising and similar to a telemarketing approach	Text 1
Set three GSR Arousal	Text 8 Group 2: Reach for a Dream Rational decision-makers	**Dear kind supporter, thank you for your donation to Reach for a Dream!**	Higher positive GSR score	Rational thinkers want affirmation for act of kindness Credible that it went to the right place. Functional and provides trust Provides a calculative informed decision Must have proof to provide trust	Text 8 Group 2: Reach for a Dream Emotional decision-makers	**Dear kind supporter, thank you for your donation to Reach for a Dream!**	Lower positive GSR score	Elaboration Likelihood Model Imagery	-

Set four EMG Emotions	Text 4 Group 1: Cheetah Outreach	**Thank you for donating of R500 to Cheetah Outreach!**	Higher positive emotion	Exact amount provides proof that all of the money was received Confirmation of amount and clarity	Text 9 Group 1: Cheetah Outreach	**Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'**	Negative emotion	Name adds confusion and unfamiliarity Identity clarification	Text 4
Set five EMG Emotions	Text 1 Group 1: Cheetah Outreach Males	**Thank you for your donation!**	Negative emotion	Males don't read Less emotional side Move on from act of donating and don't expect a thank you	Text 1 Group 1: Cheetah Outreach Females	**Thank you for your donation!**	Positive emotion	Want confirmation More emotional	**Check age and relevance**
Set six EMG Emotions	Text 10 Group 1: Cheetah Outreach Males	**Your donation has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Shepherd Dog Programme in support of the wild cheetah!**	Negative emotion	Too much wording Don't want to read so much	Text 10 Group 1: Cheetah Outreach Females	**Your donation has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Shepherd Dog Programme in support of the wild cheetah!**	Positive emotion	Level of knowledge and involvement - empathetic	
Set seven EMG Emotions	Text 10 Group 1: Cheetah Outreach Rational decision-makers	**Your donation has contributed towards helping Cheetah Outreach raise awareness of the Anatolian Shepherd**	Negative emotion	Too much wording Don't want to read so much Requires more concentration hence frown	Text 8 Group 2: Reach for a Dream Rational decision-makers	**Dear kind supporter, thank you for your donation to Reach for a Dream!**	Positive emotion	Rational as got donation, simpler, routes to process	Text 8

		Dog Programme in support of the wild cheetah!		Amount of wording Unfamiliar with the information					
Set eight EMG Emotions	Text 3 Group 1: Cheetah Outreach Rational decision-makers	**Thank you for your generous donation to Cheetah Outreach. We value your support – it really makes a difference!**	Negative emotion	Need to decide on NPO – big decision as less money and more causes to support	Text 3 Group 2: Reach for a Dream Rational decision-makers	**Thank you for your generous donation to Reach for a Dream. We value your support – it really makes a difference!**	Positive emotion	Human instinct and awareness of cause	
Set nine EMG Emotions	Text 9 Group 1: Cheetah Outreach Rational decision-makers	**Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'**	Negative emotion	Name adds confusion and unfamiliarity Identity clarification	Text 9 Group 2: Reach for a Dream! Rational decision-makers	**Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'**	Positive emotion	Name adds confusion and unfamiliarity Identity clarification	
Set ten EMG Emotions	Text 9 Group 1: Cheetah Outreach	**Message from Liesl Smith (Cheetah Outreach Manager): 'Thank you for your donation towards Cheetah Outreach!'**	Negative emotion	Unfamiliarity	Text 7 Group 2: Reach for a Dream! Rational decision-makers	**Dear kind supporter, thank you for your donation to Cheetah Outreach!**	Positive emotion		
Set eleven EMG Emotions	Text 7 Group 2: Reach for a Dream	**Dear supporter, thank you for your donation to Reach for a Dream!**	Higher negative emotion		Text 2 Group 2: Reach for a Dream	**Thank you for donating to Reach for a Dream!**	Negative emotion	Not invested – error More rational linguistics	

Set twelve EMG Emotions	Text 1 Group 2: Reach for a dream Rational decision-makers	**Thank you for your donation!**	Higher negative emotion		Text 6 Group 2: Reach for a Dream! Rational decision-makers	**Your donation has helped us to support 16520 children in the past 12 months!**	Positive emotion	Numbers Universal understanding Visual Substance and meaning	Text 6

ADDENDUM K:

SUMMARY OF RESULTS FOR INTERPRETATION

TEXT ONE: GSR RESULTS SUMMARY - CHEETAH OUTREACH (NPO ONE)

Respondent group	GSR score	Hypotheses		Decision
Overall	3.20	**H_{101}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1**	**H_{101a}**	**Rejected**
		H_{201}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 1	H_{201a}	Supported
Male	4.01	**H_{301}: Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1**	**H_{301a}**	**Rejected**
		H_{501}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 1 in the male gender group	H_{501a}	Supported
Female	2.39	**H_{302}: Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1**	H_{302a}	**Rejected**
		H_{502}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 1 in the female gender group	H_{502a}	Supported
Rational decision-maker	2.28	**H_{601}: Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1**	**H_{601a}**	**Rejected**
		H_{801}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 1 amongst rational decision-makers	H_{801a}	Supported
Emotional decision-maker	4.32	**H_{602}: Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1**	H_{602a}	**Rejected**
		H_{802}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 1 amongst emotional decision-makers	H_{802a}	Supported
Male and female comparison	-	H_{401}: Gender neurophysiological measures (a: GSR; b: EMG) for text 1 do not differ from each other	H_{401a}	Supported
Rational and emotional decision-makers comparison	-	H_{701}: Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 1 do not differ from each other	H_{701a}	Supported

TEXT ONE: GSR RESULTS SUMMARY - REACH FOR A DREAM (NPO TWO)

Respondent group	GSR score	Hypotheses		Decision
Overall	2.13	**H_{101}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1**	**H_{101a}**	**Rejected**
		H_{201}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 1	H_{201a}	Supported
Male	2.56	**H_{301}: Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1**	**H_{301a}**	**Rejected**
		H_{501}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 1 in the male gender group	H_{501a}	Supported
Female	1.61	**H_{302}: Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text**	H_{302a}	Supported
		H_{502}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 1 in the female gender group	H_{502a}	Supported
Rational decision-maker	2.64	**H_{601}: Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1**	**H_{601a}**	**Rejected**

		$H_{801:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 1 amongst rational decision-makers	H_{801a}	Supported
Emotional decision-maker	1.52	$H_{602:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1	H_{602a}	Supported
		$H_{802:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 1 amongst emotional decision-makers	H_{802a}	Supported
Male and female comparison	-	$H_{401:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 1 do not differ from each other	H_{401a}	Supported
Rational and emotional decision-makers comparison	-	$H_{701:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 1 do not differ from each other	H_{701a}	Supported

TEXT ONE: EMG RESULTS SUMMARY - CHEETAH OUTREACH (NPO ONE)

Respondent group	EMG score	Hypotheses		Decision
Overall	0.28	$H_{101:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1	H_{101b}	Supported
		$H_{201:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 1	H_{201b}	Supported
Male	-0.44	$H_{301:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1	H_{301b}	Supported
		$H_{501:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 1 in the male gender group	H_{501b}	Supported
Female	0.93	**$H_{302:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1**	**H_{302b}**	**Rejected**
		$H_{502:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 1 in the female gender group	**H_{502b}**	**Rejected**
Rational decision-maker	-0.12	$H_{601:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1	H_{601b}	Supported
		$H_{801:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 1 amongst rational decision-makers	H_{801b}	Supported
Emotional decision-maker	0.77	$H_{602:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text	H_{602b}	Supported
		$H_{802:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 1 amongst emotional decision-makers	H_{802b}	Supported
Male and female comparison	-	**$H_{401:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 1 do not differ from each other**	**H_{401b}**	**Rejected**
Rational and emotional decision-makers comparison	-	$H_{701:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 1 do not differ from each other	H_{701b}	Supported

TEXT ONE: EMG RESULTS SUMMARY - REACH FOR A DREAM (NPO TWO)

Respondent group	EMG score	Hypotheses		Decision
Overall	-0.29	**$H_{101:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1**	**H_{101b}**	**Rejected**
		$H_{201:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 1	**H_{201b}**	**Rejected**
Male	-0.14	**$H_{301:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1**	H_{301b}	Supported
		$H_{501:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 1 in the male gender group	H_{501b}	Supported
Female	-0.44	**$H_{302:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1**	**H_{302b}**	**Rejected**
		$H_{502:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 1 in the female gender group	**H_{502b}**	**Rejected**
Rational decision-makers	-0.35	**$H_{601:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1**	H_{601b}	Supported
		$H_{801:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 1 amongst rational decision-makers	**H_{801b}**	**Rejected**
Emotional decision-makers	-0.21	$H_{602:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 1	H_{602b}	Supported
		$H_{802:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 1 amongst emotional decision-makers	**H_{802b}**	**Rejected**
Male and female comparison	-	$H_{401:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 1 do not differ from each other	H_{401b}	Supported
Rational and emotional decision-makers comparison	-	$H_{701:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 1 do not differ from each other	H_{701b}	Supported

TEXT TWO: GSR RESULTS SUMMARY - CHEETAH OUTREACH (NPO ONE)

Respondent group	GSR score	Hypotheses		Decision
Overall	3.55	**H_{102}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2**	**H_{102a}**	**Rejected**
		H_{202}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 2	H_{202a}	Supported
Male	4.37	**H_{303}: Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2**	**H_{303a}**	**Rejected**
		H_{503}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 2 in the male gender group	H_{503a}	Supported
Female	2.72	**H_{304}: Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2**	**H_{304a}**	**Rejected**
		H_{504}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 2 in the female gender group	H_{504a}	Supported
Rational decision-makers	2.59	**H_{603}: Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2**	**H_{603a}**	**Rejected**
		H_{803}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 2 amongst rational decision-makers	H_{803a}	Supported
Emotional decision-makers	4.69	**H_{604}: Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2**	**H_{604a}**	**Rejected**
		H_{804}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 2 amongst emotional decision-makers	H_{804a}	Supported
Male and female comparison	-	H_{402}: Gender neurophysiological measures (a: GSR; b: EMG) for text 2 do not differ from each other	H_{402a}	Supported
Rational and emotional decision-makers comparison	-	H_{702}: Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 2 do not differ from each other	H_{702a}	Supported

TEXT TWO: GSR RESULTS SUMMARY - REACH FOR A DREAM (NPO TWO)

Respondent group	GSR score	Hypotheses		Decision
Overall	2.42	**H_{102}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2**	**H_{102a}**	**Rejected**
		H_{202}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 2	H_{202a}	Supported
Male	1.83	**H_{303}: Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2**	**H_{303a}**	**Rejected**
		H_{503}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 2 in the male gender group	H_{503a}	Supported
Female	3.14	**H_{304}: Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2**	**H_{304a}**	**Rejected**
		H_{504}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 2 in the female gender group	H_{504a}	Supported

Rational decision-makers	3.05	**$H_{603:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2**	**H_{603a}**	**Rejected**
		$H_{803:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 2 amongst rational decision-makers	H_{803a}	Supported
Emotional decision-makers	1.66	$H_{604:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2	H_{604a}	Supported
		$H_{804:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 2 amongst emotional decision-makers	H_{804a}	Supported
Male and female comparison	-	$H_{402:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 2 do not differ from each other	H_{402a}	Supported
Rational and emotional decision-makers comparison	-	$H_{702:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 2 do not differ from each other	H_{702a}	Supported

TEXT TWO: EMG RESULTS SUMMARY - CHEETAH OUTREACH (NPO ONE)

Respondent group	EMG score	Hypotheses		Decision
Overall	-0.03	$H_{102:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2	H_{102b}	Supported
		$H_{202:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 2	H_{202b}	Supported
Male	0.03	$H_{303:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2	H_{303b}	Supported
		$H_{503:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 2 in the male gender group	H_{503b}	Supported
Female	-0.11	$H_{304:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2	H_{304b}	Supported
		$H_{504:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 2 in the female gender group	H_{504b}	Supported
Rational decision-makers	-0.02	$H_{603:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2	H_{603b}	Supported
		$H_{803:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 2 amongst rational decision-makers	H_{803b}	Supported
Emotional decision-makers	-0.06	$H_{604:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2	H_{604b}	Supported
		$H_{804:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 2 amongst emotional decision-makers	H_{804b}	Supported
Male and female comparison	-	$H_{402:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 2 do not differ from each other	H_{402b}	Supported
Rational and emotional decision-makers comparison	-	$H_{702:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 2 do not differ from each other	H_{702b}	Supported

TEXT TWO: EMG RESULTS SUMMARY - REACH FOR A DREAM (NPO TWO)

Respondent group	EMG score	Hypotheses		Decision
Overall	0.23	$H_{102:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2	H_{102b}	Supported
		$H_{202:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 2	**H_{202b}**	**Rejected**
Male	0.20	$H_{303:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2	H_{303b}	Supported
		$H_{503:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 2 in the male gender group	H_{503b}	Supported
Female	0.27	$H_{304:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2	H_{304b}	Supported
		$H_{504:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 2 in the female gender group	H_{504b}	Supported
Rational decision-makers	0.30	$H_{603:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2	H_{603b}	Supported
		$H_{803:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 2 amongst rational decision-makers	H_{803b}	Supported
Emotional decision-makers	0.16	$H_{604:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 2	H_{604b}	Supported
		$H_{804:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 2 amongst emotional decision-makers	H_{804b}	Supported
Male and female comparison	-	$H_{402:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 2 do not differ from each other	H_{402b}	Supported
Rational and emotional decision-makers comparison	-	$H_{702:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 2 do not differ from each other	H_{702b}	Supported

TEXT THREE: GSR RESULTS SUMMARY – CHEETAH OUTREACH (NPO ONE)

Respondent group	GSR score	Hypotheses		Decision
Overall	2.02	**H_{103}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3**	**H_{103a}**	**Rejected**
		H_{203}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 3	H_{203a}	Supported
Male	2.90	**H_{305}: Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3**	**H_{305a}**	**Rejected**
		H_{505}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 3 in the male gender group	H_{505a}	Supported
Female	1.15	H_{306}: Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3	H_{306a}	Supported
		H_{506}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 3 in the female gender group	H_{506a}	Supported
Rational decision-makers	1.46	**H_{605}: Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3**	**H_{605a}**	**Rejected**
		H_{805}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 3 amongst rational decision-makers	H_{805a}	Supported
Emotional decision-makers	2.70	**H_{606}: Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3**	**H_{606a}**	**Rejected**
		H_{806}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 3 amongst emotional decision-makers	H_{806a}	Supported
Male and female comparison	-	H_{403}: Gender neurophysiological measures (a: GSR; b: EMG) for text 3 do not differ from each other	H_{403a}	Supported
Rational and emotional decision-makers comparison	-	H_{703}: Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 3 do not differ from each other	H_{703a}	Supported

TEXT THREE: GSR RESULTS SUMMARY - REACH FOR A DREAM (NPO TWO)

Respondent group	GSR score	Hypotheses		Decision
Overall	2.95	**H_{103}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3**	**H_{103a}**	**Rejected**
		H_{203}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 3	H_{203a}	Supported
Male	4.00	**H_{305}: Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3**	**H_{305a}**	**Rejected**
		H_{505}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 3 in the male gender group	H_{505a}	Supported
Female	1.69	H_{306}: Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3	H_{306a}	Supported
		H_{506}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 3 in the female gender group	H_{506a}	Supported
Rational decision-makers	4.00	**H_{605}: Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3**	**H_{605a}**	**Rejected**
		H_{805}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 3 amongst rational decision-makers	H_{805a}	Supported

Emotional decision-makers	1.69	H_{606}: Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3	H_{606a}	Supported
		H_{806}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 3 amongst emotional decision-makers	H_{806a}	Supported
Male and female comparison	-	H_{403}: Gender neurophysiological measures (a: GSR; b: EMG) for text 3 do not differ from each other	H_{403a}	Supported
Rational and emotional decision-makers comparison	-	H_{703}: Decision based neurophysiological measures (a: GSR; b: EMG) for text 3 do not differ from each other	H_{703a}	Supported

TEXT THREE: EMG RESULTS SUMMARY - CHEETAH OUTREACH (NPO ONE)

Respondent group	**EMG score**	**Hypotheses**		**Decision**
Overall	-0.14	H_{103}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3	H_{103b}	Supported
		H_{203}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 3	H_{203b}	Supported
Male	-0.11	H_{305}: Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3	H_{305b}	Supported
		H_{505}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 3 in the male gender group	H_{505b}	Supported
Female	-0.18	H_{306}: Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3	H_{306b}	Supported
		H_{506}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 3 in the female gender group	**H_{506b}**	**Rejected**
Rational decision-makers	-0.32	H_{605}: Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3	H_{605b}	Supported
		H_{805}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 3 amongst rational decision-makers	**H_{805b}**	**Rejected**
Emotional decision-makers	0.12	H_{606}: Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3	H_{606b}	Supported
		H_{806}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 3 amongst emotional decision-makers	H_{806b}	Supported
Male and female comparison	-	H_{403}: Gender neurophysiological measures (a: GSR; b: EMG) for text 3 do not differ from each other	H_{403b}	Supported
Rational and emotional decision-makers comparison	-	H_{703}: Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 3 do not differ from each other	H_{703b}	Supported

TEXT THREE: EMG RESULTS SUMMARY - REACH FOR A DREAM (NPO TWO)

Respondent group	**EMG score**	**Hypotheses**		**Decision**
Overall	0.24	H_{103}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3	H_{103b}	Supported
		H_{203}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 3	H_{203b}	Supported

Male	0.13	$H_{305:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3	H_{305b}	Supported
		$H_{505:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 3 in the male gender group	H_{505b}	Supported
Female	0.38	$H_{306:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3	H_{306b}	Supported
		$H_{506:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 3 in the female gender group	**H_{506b}**	**Rejected**
Rational decision-makers	0.21	$H_{605:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3	H_{605b}	Supported
		$H_{805:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 3 amongst rational decision-makers	H_{805b}	Supported
Emotional decision-makers	0.45	$H_{606:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 3	H_{606b}	Supported
		$H_{806:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 3 amongst emotional decision-makers	H_{806b}	Supported
Male and female comparison	-	$H_{403:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 3 do not differ from each other	H_{403b}	Supported
Rational and emotional decision-makers comparison	-	$H_{703:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 3 do not differ from each other	H_{703b}	Supported

TEXT FOUR: GSR RESULTS SUMMARY - CHEETAH OUTREACH (NPO ONE)

Respondent group	GSR score	Hypotheses		Decision
Overall	2.58	**H_{104}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4**	**H_{104a}**	**Rejected**
		H_{204}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 4	H_{204a}	Supported
Male	3.73	**H_{307}: Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4**	**H_{307a}**	**Rejected**
		H_{507}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 4 in the male gender group	H_{507a}	Supported
Female	1.44	H_{308}: Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4	H_{308a}	Supported
		H_{508}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 4 in the female gender group	H_{508a}	Supported
Rational decision-makers	2.66	**H_{607}: Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4**	**H_{607a}**	**Rejected**
		H_{807}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 4 amongst rational decision-makers	H_{807a}	Supported
Emotional decision-makers	2.49	H_{608}: Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4	H_{608a}	Supported
		H_{808}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 4 amongst emotional decision-makers	H_{808a}	Supported
Male and female comparison	-	H_{404}: Gender neurophysiological measures (a: GSR; b: EMG) for text 4 do not differ from each other	H_{404a}	Supported
Rational and emotional decision-makers comparison	-	H_{704}: Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 4 do not differ from each other	H_{704a}	Supported

TEXT FOUR: GSR RESULTS SUMMARY - REACH FOR A DREAM (NPO TWO)

Respondent group	GSR score	Hypotheses		Decision
Overall	2.07	**H_{104}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4**	**H_{104a}**	**Rejected**
		H_{204}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 4	H_{204a}	Supported
Male	2.75	**H_{307}: Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4**	**H_{307a}**	**Rejected**
		H_{507}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 4 in the male gender group	H_{507a}	Supported
Female	1.25	H_{308}: Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4	H_{308a}	Supported
		H_{508}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 4 in the female gender group	H_{508a}	Supported
Rational decision-makers	2.86	**H_{607}: Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4**	**H_{607a}**	**Rejected**
		H_{807}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 4 amongst rational decision-makers	H_{807a}	Supported

Emotional decision-makers	1.11	$H_{608:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4	H_{608a}	Supported
		$H_{808:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 4 amongst emotional decision-makers	H_{808a}	Supported
Male and female comparison	-	$H_{404:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 4 do not differ from each other	H_{404a}	Supported
Rational and emotional decision-makers comparison	-	$H_{704:}$ Decision based neurophysiological measures (a: GSR; b: EMG) for text 4 do not differ from each other	H_{704a}	Supported

TEXT FOUR: EMG RESULTS SUMMARY - CHEETAH OUTREACH (NPO ONE)

Respondent group	EMG score	Hypotheses		Decision
Overall	0.25	$H_{104:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4	H_{104b}	Supported
		$H_{204:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 4	**H_{204b}**	**Rejected**
Male	0.34	$H_{307:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4	H_{307b}	Supported
		$H_{507:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 4 in the male gender group	**H_{507b}**	**Rejected**
Female	0.17	$H_{308:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4	H_{308b}	Supported
		$H_{508:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 4 in the female gender group	**H_{508b}**	**Rejected**
Rational decision-makers	0.40	**$H_{607:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4**	**H_{607b}**	**Rejected**
		$H_{807:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 4 amongst rational decision-makers	**H_{807b}**	**Rejected**
Emotional decision-makers	0.06	$H_{608:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4	H_{608b}	Supported
		$H_{808:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 4 amongst emotional decision-makers	H_{808b}	Supported
Male and female comparison	-	$H_{404:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 4 do not differ from each other	H_{404b}	Supported
Rational and emotional decision-makers comparison	-	$H_{704:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 4 do not differ from each other	H_{704b}	Supported

TEXT FOUR: EMG RESULTS SUMMARY - REACH FOR A DREAM (NPO TWO)

Respondent group	EMG score	Hypotheses		Decision
Overall	0.14	$H_{104:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4	H_{104b}	Supported
		$H_{204:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 4	H_{204b}	Supported

Male	0.02	$H_{307:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4	H_{307b}	Supported
		$H_{507:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 4 in the male gender group	H_{507b}	Supported
Female	0.25	$H_{308:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4	H_{308b}	Supported
		$H_{508:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 4 in the female gender group	H_{508b}	Supported
Rational decision-makers	-0.13	$H_{607:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4	H_{607b}	Supported
		$H_{807:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 4 amongst rational decision-makers	**H_{807b}**	**Rejected**
Emotional decision-makers	0.45	$H_{608:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 4	H_{608b}	Supported
		$H_{808:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 4 amongst emotional decision-makers	**H_{808b}**	**Rejected**
Male and female comparison	-	$H_{404:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 4 do not differ from each other	H_{404b}	Supported
Rational and emotional decision-makers comparison	-	$H_{704:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 4 do not differ from each other	H_{704b}	Supported

TEXT FIVE: GSR RESULTS SUMMARY - CHEETAH OUTREACH (NPO ONE)

Respondent group	GSR score	Hypotheses		Decision
Overall	2.59	**$H_{105:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5**	**H_{105a}**	**Rejected**
		$H_{205:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 5	H_{205a}	Supported
Male	3.64	**$H_{309:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5**	**H_{309a}**	**Rejected**
		$H_{509:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 5 in the male gender group	H_{509a}	Supported
Female	1.54	$H_{310:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5	H_{310a}	Supported
		$H_{510:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 5 in the female gender group	H_{510a}	Supported
Rational decision-makers	1.58	**$H_{609:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5**	**H_{609a}**	**Rejected**
		$H_{809:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 5 amongst rational decision-makers	H_{809a}	Supported
Emotional decision-makers	3.80	**$H_{610:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5**	**H_{610a}**	**Rejected**
		$H_{810:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 5 amongst emotional decision-makers	H_{810a}	Supported
Male and female comparison	-	$H_{405:}$ Male neurophysiological measures (a: GSR; b: EMG) for text 5 do not differ from each other	H_{405a}	Supported
Rational and emotional decision-makers comparison	-	$H_{705:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 5 do not differ from each other	H_{705a}	Supported

TEXT FIVE: GSR RESULTS SUMMARY - REACH FOR A DREAM (NPO TWO)

Respondent group	GSR score	Hypotheses		Decision
Overall	2.93	**$H_{105:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5**	**H_{105a}**	**Rejected**
		$H_{205:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 5	**H_{205a}**	**Rejected**
Male	1.83	**$H_{309:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5**	**H_{309a}**	**Rejected**
		$H_{509:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 5 in the male gender group	H_{509a}	Supported
Female	4.26	**$H_{310:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5**	**H_{310a}**	**Rejected**
		$H_{510:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 5 in the female gender group	**H_{510a}**	**Rejected**
Rational decision-makers	2.85	**$H_{609:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5**	**H_{609a}**	**Rejected**
		$H_{809:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 5 amongst rational decision-makers	H_{809a}	Supported

Emotional decision-makers	3.03	**H_{610}: Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5**	**H_{610a}**	**Rejected**
		H_{810}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 5 amongst emotional decision-makers	H_{810a}	Supported
Male and female comparison	-	H_{405}: Male neurophysiological measures (a: GSR; b: EMG) for text 5 do not differ from each other	H_{405a}	Supported
Rational and emotional decision-makers comparison	-	H_{705}: Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 5 do not differ from each other	H_{705a}	Supported

TEXT FIVE: EMG RESULTS SUMMARY - CHEETAH OUTREACH (NPO ONE)

Respondent group	EMG score	Hypotheses		Decision
Overall	0.26	H_{105}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5	H_{105b}	Supported
		H_{205}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 5	H_{205b}	Supported
Male	-0.10	H_{309}: Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5	H_{309b}	Supported
		H_{509}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 5 in the male gender group	H_{509b}	Supported
Female	0.66	H_{310}: Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5	H_{310b}	Supported
		H_{510}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 5 in the female gender group	**H_{510b}**	**Rejected**
Rational decision-makers	0.13	H_{609}: Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5	H_{609b}	Supported
		H_{809}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 5 amongst rational decision-makers	H_{809b}	Supported
Emotional decision-makers	0.40	H_{610}: Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5	H_{610b}	Supported
		H_{810}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 5 amongst emotional decision-makers	H_{810b}	Supported
Male and female comparison	-	H_{405}: Male neurophysiological measures (a: GSR; b: EMG) for text 5 do not differ from each other	H_{405b}	Supported
Rational and emotional decision-makers comparison	-	H_{705}: Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 5 do not differ from each other	H_{705b}	Supported

TEXT FIVE: EMG RESULTS SUMMARY - REACH FOR A DREAM (NPO TWO)

Respondent group	EMG score	Hypotheses		Decision
Overall	-0.29	H_{105}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5	H_{105b}	Supported
		H_{205}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 5	**H_{205b}**	**Rejected**

Male	-0.18	$H_{309:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5	H_{309b}	Supported
		$H_{509:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 5 in the male gender group	**H_{509b}**	**Rejected**
Female	-0.42	$H_{310:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5	H_{310b}	Supported
		$H_{510:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 5 in the female gender group	H_{510b}	Supported
Rational decision-makers	-0.23	$H_{609:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5	H_{609b}	Supported
		$H_{809:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 5 amongst rational decision-makers	**H_{809b}**	**Rejected**
Emotional decision-makers	-0.38	$H_{610:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 5	H_{610b}	Supported
		$H_{810:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 5 amongst emotional decision-makers	H_{810b}	Supported
Male and female comparison	-	$H_{405:}$ Male neurophysiological measures (a: GSR; b: EMG) for text 5 do not differ from each other	H_{405b}	Supported
Rational and emotional decision-makers comparison	-	$H_{705:}$ Decision based neurophysiological measures (a: GSR; b: EMG) for text 5 do not differ from each other	H_{705b}	Supported

TEXT SIX: GSR RESULTS SUMMARY - CHEETAH OUTREACH (NPO ONE)

Respondent group	GSR score	Hypotheses		Decision
Overall	3.43	**H_{106}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6**	**H_{106a}**	**Rejected**
		H_{206}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 6	H_{206a}	Supported
Male	4.02	**H_{311}: Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6**	**H_{311a}**	**Rejected**
		H_{511}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 6 in the male gender group	H_{511a}	Supported
Female	2.84	**H_{312}: Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6**	**H_{312a}**	**Rejected**
		H_{512}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 6 in the female gender group	H_{512a}	Supported
Rational decision-makers	2.93	**H_{611}: Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6**	**H_{611a}**	**Rejected**
		H_{811}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 6 amongst rational decision-makers	H_{811a}	Supported
Emotional decision-makers	4.03	**H_{612}: Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6**	**H_{612a}**	**Rejected**
		H_{812}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 6 amongst emotional decision-makers	H_{812a}	Supported
Male and female comparison	-	H_{406}: Gender neurophysiological measures (a: GSR; b: EMG) for text 6 do not differ from each other	H_{406a}	Supported
Rational and emotional decision-makers comparison	-	H_{706}: Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 6 do not differ from each other	H_{706a}	Supported

TEXT SIX: GSR RESULTS SUMMARY - REACH FOR A DREAM (NPO TWO)

Respondent group	GSR score	Hypotheses		Decision
Overall	1.82	**H_{106}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6**	**H_{106a}**	**Rejected**
		H_{206}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 6	H_{206a}	Supported
Male	1.50	**H_{311}: Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6**	**H_{311a}**	Supported
		H_{511}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 6 in the male gender group	H_{511a}	Supported
Female	2.22	**H_{312}: Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6**	**H_{312a}**	**Rejected**
		H_{512}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 6 in the female gender group	H_{512a}	Supported
Rational decision-makers	2.41	**H_{611}: Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6**	**H_{611a}**	**Rejected**
		H_{811}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 6 amongst rational decision-makers	H_{811a}	Supported

Emotional decision-makers	1.11	**H_{612}: Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6**	**H_{612a}**	Supported
		H_{812}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 6 amongst emotional decision-makers	H_{812a}	Supported
Male and female comparison	-	H_{406}: Gender neurophysiological measures (a: GSR; b: EMG) for text 6 do not differ from each other	H_{406a}	Supported
Rational and emotional decision-makers comparison	-	H_{706}: Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 6 do not differ from each other	H_{706a}	Supported

TEXT SIX: EMG RESULTS SUMMARY - CHEETAH OUTREACH (NPO ONE)

Respondent group	EMG score	Hypotheses		Decision
Overall	0.03	H_{106}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6	H_{106b}	Supported
		H_{206}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 6	H_{206b}	Supported
Male	-0.35	H_{311}: Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6	H_{311b}	Supported
		H_{511}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 6 in the male gender group	H_{511b}	Supported
Female	0.42	H_{312}: Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6	H_{312b}	Supported
		H_{512}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 6 in the female gender group	**H_{512b}**	**Rejected**
Rational decision-makers	0.26	H_{611}: Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6	H_{611b}	Supported
		H_{811}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 6 amongst rational decision-makers	H_{811b}	Supported
Emotional decision-makers	-0.26	H_{612}: Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6	H_{612b}	Supported
		H_{812}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 6 amongst emotional decision-makers	H_{812b}	Supported
Male and female comparison	-	H_{406}: Gender neurophysiological measures (a: GSR; b: EMG) for text 6 do not differ from each other	H_{406b}	Supported
Rational and emotional decision-makers comparison	-	H_{706}: Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 6 do not differ from each other	H_{706b}	Supported

TEXT SIX: EMG RESULTS SUMMARY - REACH FOR A DREAM (NPO TWO)

Respondent group	EMG score	Hypotheses		Decision
Overall	0.03	H_{106}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6	H_{106b}	Supported
		H_{206}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 6	H_{206b}	Supported

Male	0.05	$H_{311:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6	H_{311b}	Supported
		$H_{511:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 6 in the male gender group	H_{511b}	Supported
Female	0.01	$H_{312:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6	H_{312b}	Supported
		$H_{512:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 6 in the female gender group	H_{512b}	Supported
Rational decision-makers	0.21	$H_{611:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6	H_{611b}	Supported
		$H_{811:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 6 amongst rational decision-makers	**H_{811b}**	**Rejected**
Emotional decision-makers	-0.21	$H_{612:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 6	H_{612b}	Supported
		$H_{812:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 6 amongst emotional decision-makers	H_{812b}	Supported
Male and female comparison	-	$H_{406:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 6 do not differ from each other	H_{406b}	Supported
Rational and emotional decision-makers comparison	-	$H_{706:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 6 do not differ from each other	H_{706b}	Supported

TEXT SEVEN: GSR RESULTS SUMMARY - CHEETAH OUTREACH (NPO ONE)

Respondent group	GSR score	Hypotheses		Decision
Overall	2.10	**H_{107}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7**	**H_{107a}**	**Rejected**
		H_{207}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 7	H_{207a}	Supported
Male	2.76	**H_{313}: Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7**	**H_{313a}**	**Rejected**
		H_{513}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 7 in the male gender group	H_{513a}	Supported
Female	1.44	H_{314}: Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7	H_{314a}	Supported
		H_{514}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 7 in the female gender group	H_{514a}	Supported
Rational decision-makers	2.53	**H_{613}: Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7**	**H_{613a}**	**Rejected**
		H_{813}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 7 amongst rational decision-makers	H_{813a}	Supported
Emotional decision-makers	1.58	H_{614}: Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7	H_{614a}	Supported
		H_{814}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 7 amongst emotional decision-makers	H_{814a}	Supported
Male and female comparison	-	H_{407}: Gender neurophysiological measures (a: GSR; b: EMG) for text 7 do not differ from each other	H_{407a}	Supported
Rational and emotional decision-makers comparison	-	H_{707}: Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 7 do not differ from each other	H_{707a}	Supported

TEXT SEVEN: GSR RESULTS SUMMARY - REACH FOR A DREAM (NPO TWO)

Respondent group	GSR score	Hypotheses		Decision
Overall	1.03	**H_{107}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7**	**H_{107a}**	**Rejected**
		H_{207}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 7	**H_{207a}**	**Rejected**
Male	1.37	H_{313}: Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7	H_{313a}	Supported
		H_{513}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 7 in the male gender group	H_{513a}	Supported
Female	0.61	H_{314}: Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7	H_{314a}	Supported
		H_{514}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 7 in the female gender group	**H_{514a}**	**Rejected**
Rational decision-makers	1.37	H_{613}: Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7	H_{613a}	Supported
		H_{813}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 7 amongst rational decision-makers	H_{813a}	Supported

Emotional decision-makers	0.61	$H_{614:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7	H_{614a}	Supported
		$H_{814:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 7 amongst emotional decision-makers	H_{814a}	Supported
Male and female comparison	-	$H_{407:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 7 do not differ from each other	H_{407a}	Supported
Rational and emotional decision-makers comparison	-	$H_{707:}$ Decision based neurophysiological measures (a: GSR; b: EMG) for text 7 do not differ from each other	H_{707a}	Supported

TEXT SEVEN: EMG RESULTS SUMMARY - CHEETAH OUTREACH (NPO ONE)

Respondent group	EMG score	Hypotheses		Decision
Overall	-0.34	**$H_{107:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7**	**H_{107b}**	**Rejected**
		$H_{207:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 7	**H_{207b}**	**Rejected**
Male	-0.01	$H_{313:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7	H_{313b}	Supported
		$H_{513:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 7 in the male gender group	H_{513b}	Supported
Female	-0.66	**$H_{314:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7**	**H_{314b}**	**Rejected**
		$H_{514:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 7 in the female gender group	**H_{514b}**	**Rejected**
Rational decision-makers	-0.29	**$H_{613:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7**	**H_{613b}**	**Rejected**
		$H_{813:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 7 amongst rational decision-makers	**H_{813b}**	**Rejected**
Emotional decision-makers	-0.42	$H_{614:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7	H_{614b}	Supported
		$H_{814:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 7 amongst emotional decision-makers	H_{814b}	Supported
Male and female comparison	-	$H_{407:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 7 do not differ from each other	H_{407b}	Supported
Rational and emotional decision-makers comparison	-	$H_{707:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 7 do not differ from each other	H_{707b}	Supported

TEXT SEVEN: EMG RESULTS SUMMARY - REACH FOR A DREAM (NPO TWO)

Respondent group	EMG score	Hypotheses		Decision
Overall	-0.22	$H_{107:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7	H_{107b}	Supported
		$H_{207:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 7	**H_{207b}**	**Rejected**

Male	-0.42	$H_{313:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7	H_{313b}	Supported
		$H_{513:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 7 in the male gender group	**H_{513b}**	**Rejected**
Female	0.00	$H_{314:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7	H_{314b}	Supported
		$H_{514:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 7 in the female gender group	H_{514b}	Supported
Rational decision-makers	-0.25	$H_{613:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7	H_{613b}	Supported
		$H_{813:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 7 amongst rational decision-makers	H_{813b}	Supported
Emotional decision-makers	-0.18	$H_{614:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 7	H_{614b}	Supported
		$H_{814:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 7 amongst emotional decision-makers	H_{814b}	Supported
Male and female comparison	-	$H_{407:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 7 do not differ from each other	H_{407b}	Supported
Rational and emotional decision-makers comparison	-	$H_{707:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 7 do not differ from each other	H_{707b}	Supported

TEXT EIGHT: GSR RESULTS SUMMARY - CHEETAH OUTREACH (NPO ONE)

Respondent group	GSR score	Hypotheses		Decision
Overall	2.25	**H_{108}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8**	**H_{108a}**	**Rejected**
		H_{208}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 8	H_{208a}	Supported
Male	3.07	**H_{315}: Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8**	**H_{315a}**	**Rejected**
		H_{515}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 8 in the male gender group	H_{515a}	Supported
Female	1.44	H_{316}: Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8	H_{316a}	Supported
		H_{516}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 8 in the female gender group	H_{516a}	Supported
Rational decision-makers	1.94	**H_{615}: Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8**	**H_{615a}**	**Rejected**
		H_{815}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 8 amongst rational decision-makers	H_{815a}	Supported
Emotional decision-makers	2.63	**H_{616}: Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8**	**H_{616a}**	**Rejected**
		H_{816}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 8 amongst emotional decision-makers	H_{816a}	Supported
Male and female comparison	-	H_{408}: Gender neurophysiological measures (a: GSR; b: EMG) for text 8 do not differ from each other	H_{408a}	Supported
Rational and emotional decision-makers comparison	-	H_{708}: Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 8 do not differ from each other	H_{708a}	Supported

TEXT EIGHT: GSR RESULTS SUMMARY - REACH FOR A DREAM (NPO TWO)

Respondent group	GSR score	Hypotheses		Decision
Overall	2.38	**H_{108}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8**	**H_{108a}**	**Rejected**
		H_{208}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 8	H_{208a}	Supported
Male	2.92	**H_{315}: Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8**	**H_{315a}**	**Rejected**
		H_{515}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 8 in the male gender group	H_{515a}	Supported
Female	1.72	H_{316}: Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8	H_{316a}	Supported
		H_{516}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 8 in the female gender group	H_{516a}	Supported
Rational decision-makers	3.84	**H_{615}: Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8**	**H_{615a}**	**Rejected**
		H_{815}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 8 amongst rational decision-makers	H_{815a}	Supported

Emotional decision-makers	0.61	$H_{616:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8	H_{616a}	Supported
		$H_{816:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 8 amongst emotional decision-makers	H_{816a}	Supported
Male and female comparison	-	$H_{408:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 8 do not differ from each other	H_{408a}	Supported
Rational and emotional decision-makers comparison	-	$H_{708:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 8 do not differ from each other	H_{708a}	Supported

TEXT EIGHT: EMG RESULTS SUMMARY - CHEETAH OUTREACH (NPO ONE)

Respondent group	EMG score	Hypotheses		Decision
Overall	0.19	$H_{108:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8	H_{108b}	Supported
		$H_{208:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 8	**H_{208b}**	**Rejected**
Male	-0.07	$H_{315:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8	H_{315b}	Supported
		$H_{515:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 8 in the male gender group	H_{515b}	Supported
Female	0.46	**$H_{316:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8**	**H_{316b}**	**Rejected**
		$H_{516:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 8 in the female gender group	**H_{516b}**	**Rejected**
Rational decision-makers	0.24	$H_{615:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8	H_{615b}	Supported
		$H_{815:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 8 amongst rational decision-makers	H_{815b}	Supported
Emotional decision-makers	0.12	$H_{616:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8	H_{616b}	Supported
		$H_{816:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 8 amongst emotional decision-makers	H_{816b}	Supported
Male and female comparison	-	$H_{408:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 8 do not differ from each other	H_{408b}	Supported
Rational and emotional decision-makers comparison	-	$H_{708:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 8 do not differ from each other	H_{708b}	Supported

TEXT EIGHT: EMG RESULTS SUMMARY - REACH FOR A DREAM (NPO TWO)

Respondent group	EMG score	Hypotheses		Decision
Overall	0.24	$H_{108:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8	H_{108b}	Supported
		$H_{208:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 8	H_{208b}	Supported

Male	-0.02	$H_{315:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8	H_{315b}	Supported
		$H_{515:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 8 in the male gender group.	H_{515b}	Supported
Female	0.52	$H_{316:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8	H_{316b}	Supported
		$H_{516:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 8 in the female gender group	H_{516b}	Supported
Rational decision-makers	0.18	$H_{615:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8	H_{615b}	Supported
		$H_{815:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 8 amongst rational decision-makers	H_{815b}	Supported
Emotional decision-makers	0.34	$H_{616:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 8	H_{616b}	Supported
		$H_{816:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 8 amongst emotional decision-makers	H_{816b}	Supported
Male and female comparison	-	$H_{408:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 8 do not differ from each other	H_{408b}	Supported
Rational and emotional decision-makers comparison	-	$H_{708:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 8 do not differ from each other	H_{708b}	Supported

TEXT NINE: GSR RESULTS SUMMARY - CHEETAH OUTREACH (NPO ONE)

Respondent group	GSR score	Hypotheses		Decision
Overall	2.69	**$H_{109:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9**	**H_{109a}**	**Rejected**
		$H_{209:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 9	H_{209a}	Supported
Male	2.61	**$H_{317:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9**	**H_{317a}**	**Rejected**
		$H_{517:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 9 in the male gender group	H_{517a}	Supported
Female	2.78	**$H_{318:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9**	**H_{318a}**	**Rejected**
		$H_{518:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 9 in the female gender group	H_{518a}	Supported
Rational decision-makers	2.75	**$H_{617:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9**	**H_{617a}**	**Rejected**
		$H_{817:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 9 amongst rational decision-makers	H_{817a}	Supported
Emotional decision-makers	2.63	**$H_{618:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9**	**H_{618a}**	**Rejected**
		$H_{818:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 9 amongst emotional decision-makers	H_{818a}	Supported
Male and female comparison	-	$H_{409:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 9 do not differ from each other	H_{409a}	Supported
Rational and emotional decision-makers comparison	-	$H_{709:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 9 do not differ from each other	H_{709a}	Supported

TEXT NINE: GSR RESULTS SUMMARY - REACH FOR A DREAM (NPO TWO)

Respondent group	GSR score	Hypotheses		Decision
Overall	1.75	**$H_{109:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9**	**H_{109a}**	**Rejected**
		$H_{209:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 9	H_{209a}	Supported
Male	1.37	$H_{317:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9	H_{317a}	Supported
		$H_{517:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 9 in the male gender group	H_{517a}	Supported
Female	2.22	**$H_{318:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9**	**H_{318a}**	**Rejected**
		$H_{518:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 9 in the female gender group	H_{518a}	Supported
Rational decision-makers	1.37	$H_{617:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9	H_{617a}	Supported
		$H_{817:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 9 amongst rational decision-makers	H_{817a}	Supported

Emotional decision-makers	2.22	**$H_{618:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9**	**H_{618a}**	**Rejected**
		$H_{818:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 9 amongst emotional decision-makers	H_{818a}	Supported
Male and female comparison	-	$H_{409:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 9 do not differ from each other	H_{409a}	Supported
Rational and emotional decision-makers comparison	-	$H_{709:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 9 do not differ from each other	H_{709a}	Supported

TEXT NINE: EMG RESULTS SUMMARY - CHEETAH OUTREACH (NPO ONE)

Respondent group	EMG score	Hypotheses		Decision
Overall	-0.22	$H_{109:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9	H_{109b}	Supported
		$H_{209:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 9	**H_{209b}**	**Rejected**
Male	-0.08	$H_{317:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9	H_{317b}	Supported
		$H_{517:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 9 in the male gender group	H_{517b}	Supported
Female	-0.35	**$H_{318:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9**	**H_{318b}**	**Rejected**
		$H_{518:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 9 in the female gender group	**H_{518b}**	**Rejected**
Rational decision-makers	-0.27	$H_{617:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9	H_{617b}	Supported
		$H_{817:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 9 amongst rational decision-makers	**H_{817b}**	**Rejected**
Emotional decision-makers	-0.16	$H_{618:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9	H_{618b}	Supported
		$H_{818:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 9 amongst emotional decision-makers	H_{818b}	Supported
Male and female comparison	-	$H_{409:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 9 do not differ from each other	H_{409b}	Supported
Rational and emotional decision-makers comparison	-	$H_{709:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 9 do not differ from each other	H_{709b}	Supported

TEXT NINE: EMG RESULTS SUMMARY - REACH FOR A DREAM (NPO TWO)

Respondent group	EMG score	Hypotheses		Decision
Overall	0.32	**$H_{109:}$ Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9**	**H_{109b}**	**Rejected**
		$H_{209:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 9	**H_{209b}**	**Rejected**

Male	0.34	$H_{317:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9	H_{317b}	Supported
		$H_{517:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 9 in the male gender group	**H_{517b}**	**Rejected**
Female	0.29	$H_{318:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9	H_{318b}	Supported
		$H_{518:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 9 in the female gender group	**H_{518b}**	**Rejected**
Rational decision-makers	0.40	**$H_{617:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9**	**H_{617b}**	**Rejected**
		$H_{817:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 9 amongst rational decision-makers	**H_{817b}**	**Rejected**
Emotional decision-makers	0.20	$H_{618:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 9	H_{618b}	Supported
		$H_{818:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 9 amongst emotional decision-makers	H_{818b}	Supported
Male and female comparison	-	$H_{409:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 9 do not differ from each other	H_{409b}	Supported
Rational and emotional decision-makers comparison	-	$H_{709:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 9 do not differ from each other	H_{709b}	Supported

TEXT TEN: GSR RESULTS SUMMARY - CHEETAH OUTREACH (NPO ONE)

Respondent group	GSR score	Hypotheses		Decision
Overall	2.33	**H_{110}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10**	**H_{110a}**	**Rejected**
		H_{210}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 10	H_{210a}	Supported
Male	3.70	**H_{319}: Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10**	**H_{319a}**	**Rejected**
		H_{519}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 10 in the male gender group	H_{519a}	Supported
Female	0.96	H_{320}: Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10	H_{320a}	Supported
		H_{520}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 10 in the female gender group	H_{520a}	Supported
Rational decision-makers	2.02	**H_{619}: Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10**	**H_{619a}**	**Rejected**
		H_{819}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 10 amongst rational decision-makers	H_{819a}	Supported
Emotional decision-makers	2.70	H_{620}: Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10	H_{620a}	Supported
		H_{820}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 10 amongst emotional decision-makers	H_{820a}	Supported
Male and female comparison	-	H_{410}: Gender neurophysiological measures (a: GSR; b: EMG) for text 10 do not differ from each other	H_{410a}	Supported
Rational and emotional decision-makers comparison	-	H_{710}: Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 10 do not differ from each other	H_{710a}	Supported

TEXT TEN: GSR RESULTS SUMMARY - REACH FOR A DREAM (NPO TWO)

Respondent group	GSR score	Hypotheses		Decision
Overall	2.17	**H_{110}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10**	**H_{110a}**	**Rejected**
		H_{210}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 10	H_{210a}	Supported
Male	2.75	**H_{319}: Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10**	**H_{319a}**	**Rejected**
		H_{519}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 10 in the male gender group	H_{519a}	Supported
Female	1.48	H_{320}: Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10	H_{320a}	Supported
		H_{520}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 10 in the female gender group	H_{520a}	Supported
Rational decision-makers	1.68	**H_{619}: Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10**	**H_{619a}**	**Rejected**
		H_{819}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 10 amongst rational decision-makers	H_{819a}	Supported

Emotional decision-makers	2.77	**H_{620}: Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10**	**H_{620a}**	**Rejected**
		H_{820}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 10 amongst emotional decision-makers	H_{820a}	Supported
Male and female comparison	-	H_{410}: Gender neurophysiological measures (a: GSR; b: EMG) for text 10 do not differ from each other	H_{410a}	Supported
Rational and emotional decision-makers comparison	-	H_{710}: Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 10 do not differ from each other	H_{710a}	Supported

TEXT TEN: EMG RESULTS SUMMARY - CHEETAH OUTREACH (NPO ONE)

Respondent group	EMG score	Hypotheses		Decision
Overall	-0.08	H_{110}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10	H_{110b}	Supported
		H_{210}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 10	H_{210b}	Supported
Male	-0.55	**H_{319}: Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10**	**H_{319b}**	**Rejected**
		H_{519}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 10 in the male gender group	**H_{519b}**	**Rejected**
Female	0.45	**H_{320}: Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10**	**H_{320b}**	**Rejected**
		H_{520}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 10 in the female gender group	H_{520b}	Supported
Rational decision-makers	-0.41	H_{619}: Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10	H_{619b}	Supported
		H_{819}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 10 amongst rational decision-makers	**H_{819b}**	**Rejected**
Emotional decision-makers	0.29	H_{620}: Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10	H_{620b}	Supported
		H_{820}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 10 amongst emotional decision-makers	H_{820b}	Supported
Male and female comparison	-	**H_{410}: Gender neurophysiological measures (a: GSR; b: EMG) for text 10 do not differ from each other**	**H_{410b}**	**Rejected**
Rational and emotional decision-makers comparison	-	H_{710}: Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 10 do not differ from each other	H_{710b}	Supported

TEXT TEN: EMG RESULTS SUMMARY - REACH FOR A DREAM (NPO TWO)

Respondent group	EMG score	Hypotheses		Decision
Overall	-0.02	H_{110}: Neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10	H_{110b}	Supported
		H_{210}: Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other in text 10	H_{210b}	Supported

Male	-0.04	$H_{319:}$ Male neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10	H_{319b}	Supported
		$H_{519:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 10 in the male gender group	H_{519b}	Supported
Female	0.01	$H_{320:}$ Female neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10	H_{320b}	Supported
		$H_{520:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 10 in the female gender group	H_{520b}	Supported
Rational decision-makers	-0.21	$H_{619:}$ Rational neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10	H_{619b}	Supported
		$H_{819:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to 10 do not differ from each other for text 10 amongst rational decision-makers	H_{819b}	Supported
Emotional decision-makers	0.25	$H_{620:}$ Emotional neurophysiological measures (a: GSR; b: EMG) do not differ from the baseline in text 10	H_{620b}	Supported
		$H_{820:}$ Neurophysiological measures (a: GSR; b: EMG) for text 1 to10 do not differ from each other for text 10 amongst emotional decision-makers	H_{820b}	Supported
Male and female comparison	-	$H_{410:}$ Gender neurophysiological measures (a: GSR; b: EMG) for text 10 do not differ from each other	H_{410b}	Supported
Rational and emotional decision-makers comparison	-	$H_{710:}$ Decision-basis neurophysiological measures (a: GSR; b: EMG) for text 10 do not differ from each other	H_{710b}	Supported